

CELEBRATING
25 YEARS
OF TRUST &
INNOVATION



CPVC^{PRO}

ADVANCED HOT AND COLD WATER
PLUMBING SOLUTIONS

PRODUCT CATALOGUE



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ALL INSTALLATIONS

**1st TO
INTRODUCE
CPVC
IN INDIA**

**1st TO
INTRODUCE
UPVC LEAD
FREE PIPES
IN INDIA**

**1st TO
INTRODUCE
LOW NOISE
PP DRAINAGE
PIPES IN INDIA**

**1st TO
INTRODUCE
FOAMED PVC
DRAINAGE
PIPES IN INDIA**



**1st TO
INTRODUCE
LEAD FREE
COLUMN PIPES
IN INDIA**

**1st TO
INTRODUCE
POLYMER BASED
INDUSTRIAL
PIPING SYSTEM
IN INDIA**

**1st TO
INTRODUCE
NSF APPROVED
SOLVENT
CEMENT
IN INDIA**

**1st TO
INTRODUCE
CPVC PIPING FOR
AUTOMATIC
FIRE SPRINKLER
SYSTEM IN INDIA**

Astral, India's Progressive Building Materials Company

Established in 1996 with the aim to manufacture best-in-globe plastic piping systems, Astral Pipes fulfils emerging piping needs of millions of houses and adds extra mileage to India's developing real estate fraternity with the hallmark of unbeaten quality and innovative piping solutions. Keeping itself ahead of the technology curve, Astral has always been a front runner in the piping category by bringing innovation and getting rid of old, primitive and ineffective plumbing methods. Bringing CPVC in India, and pioneering in this technology, have set Astral apart and its highest quality enabled it to obtain NSF approval for its CPVC pipes and fittings. Astral went beyond the category codes by launching many industry firsts, like launching India's first lead-free uPVC pipes for plumbing as well as for stream water, just to name a few.

Astral Pipes offers the widest product range across this category when it comes to product applications. Astral Pipes is equipped with production facilities at Santej and Dholka in Gujarat, Hosur in Tamil Nadu, Ghiloth in Rajasthan, Sangli & Aurangabad in Maharashtra, Cuttack in Odisha and Sitarganj in Uttarakhand, Guwahati in Assam to manufacture plumbing systems, drainage systems, agriculture systems, fire sprinkler piping systems, industrial piping and electrical conduit pipes with all kinds of necessary fittings.

Astral Pipes' Infrastructure division offers a comprehensive product range including corrugated piping for drainage and cables, polyolefin cable channels, sewage treatment plants, plastic sheathing ducts, suction hoses, and sub-surface drainage systems. This range helps Astral to establish a strong foothold in infrastructure and agriculture sector in the constantly evolving business of piping.

In 2014, Astral forayed into the adhesives category by acquiring UK-based Seal It Services Ltd. and Kanpur based Resinova Chemie Ltd., which manufacture adhesives, sealants and construction chemicals. With five manufacturing facilities now in this business segment, Astral has strengthened its presence in the category and made rapid inroads.

In the year 2020, Astral has expanded its product portfolio and entered into the Water Tanks Segment. The water tank segment is an expanded domain of plumbing and water supply with a huge nationwide potential. Astral Pipes manufactures water tanks from its Santej, Aurangabad, Cuttack, Hosur & Ghiloth manufacturing facilities. A wide range of water storage tanks has helped Astral to become a versatile player in the industry.

Extending the product portfolio further, in the year 2022 Astral forayed into the categories of Faucets and Sanitaryware, followed by acquisition of Bangalore based Gem Paints to enter in the Paints category. This expansion will help Astral march firmly towards becoming a holistic building materials company.

ADHESIVES

- EPOXY ADHESIVES & PUTTY
- SILICONE SEALANTS
- CONSTRUCTION CHEMICALS
- PVA
- CYANOACRYLATE
- SOLVENT CEMENTS
- TAPES
- POLYMERIC FILLING COMPOUND
- ANAEROBIC ADHESIVES
- INDUSTRIAL ADHESIVES
- INSTANT HAND SANITIZER
- SURFACE CLEANING PRODUCTS

PIPING

- PLUMBING PIPES & FITTINGS
- CPVC, PVC & PEX
- SEWERAGE DRAINAGE PIPES & FITTINGS
- AGRICULTURE PIPES & FITTINGS
- INDUSTRIAL PIPES & FITTINGS
- FIRE SPRINKLERS PIPES & FITTINGS
- CONDUIT & CABLE PROTECTION
- ANCILLARY PRODUCTS
- URBAN INFRASTRUCTURE
- DUCTING

WATER TANKS

PAINTS

FAUCETS

SANITARYWARE





INNOVATION & RECOGNITIONS

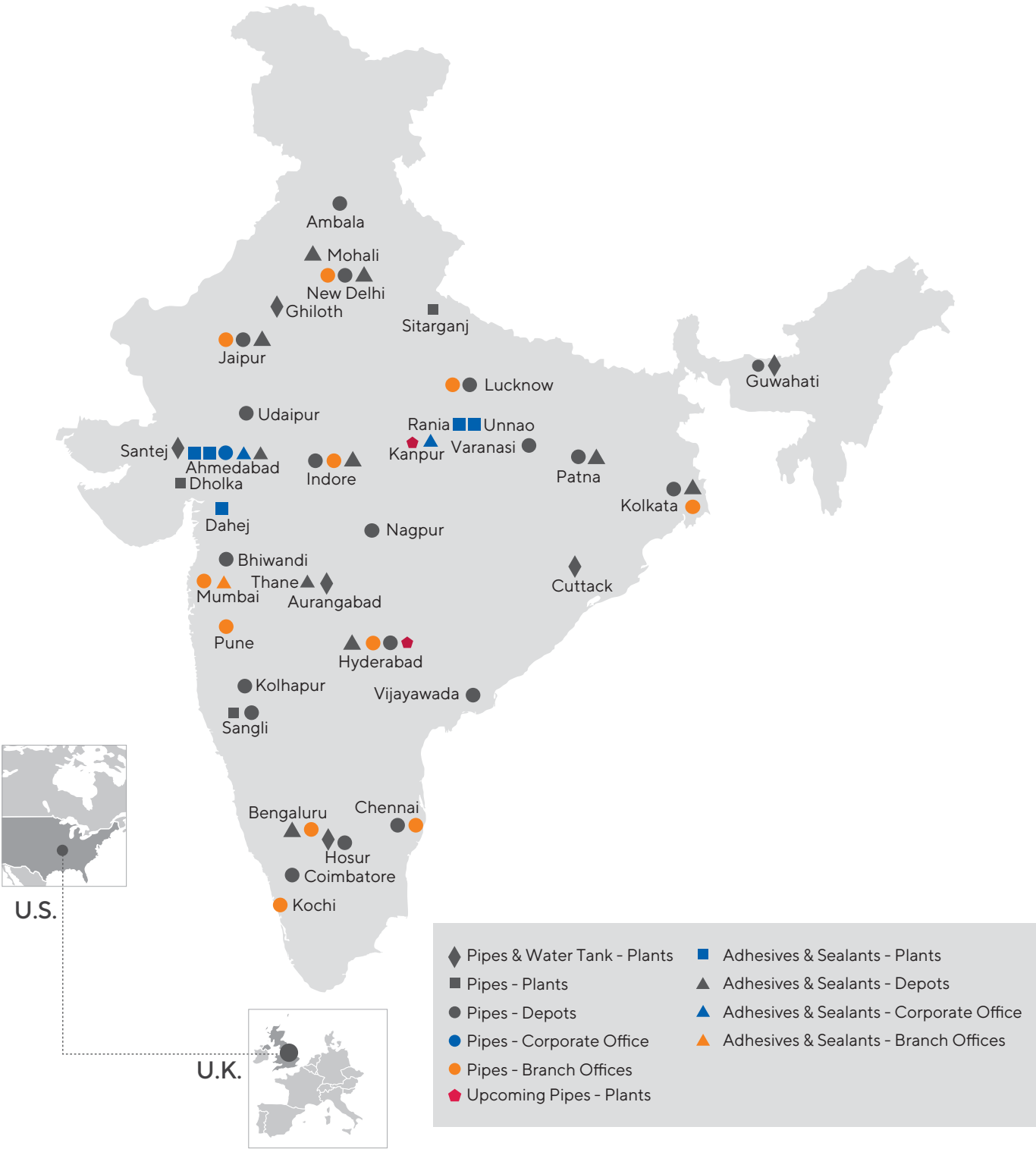
- First to introduce CPVC piping system in India (1999)
- First to launch lead free uPVC piping system in India (2004)
- Corp Excel- National SME Excellence Award (2006)
- First to get NSF Certification for CPVC piping system in India (2007)
- First to launch lead-free uPVC column pipes in India (2012)
- Enterprising Entrepreneur of the year (2012-13)
- Business Standard Star SME of the year (2013)
- Inc. India Innovative 100 for Smart Innovation under category of 'Technology' (2013)
- India's Most Promising Brand Award (2014)
- Value Creator Award during the first ever Fortune India Next 500 (2015)
- India's Most Trusted Pipe Brand Award (2016, 2019, 2020 & 2022)
- ET Inspiring Business Leaders of India Award (2016)
- India's Most Attractive Pipe Brand Award (2016)
- Fortune India 500 Company (2016)
- India's Most Desired Pipe Brand Award (2022)
- Consumer Validated Superbrands India (2017, 2019 & 2021-2022)



Marketing Network

Astral has a marketing network of more than 800 distributors and 30,000 dealers spread all over India with branch offices at Mumbai, Pune, Delhi, Bengaluru, Chennai, Hyderabad, Jaipur, Lucknow and Kochi. Apart from that Astral has its own warehouses at Vijaywada, Hyderabad, Delhi, Kolhapur, Kolkata, Nagpur, Indore, Patna, Varanasi,

Jaipur, Hosur & Guwahati to deliver the material as quick as possible. More than 400 techno marketing professionals and administrative personnel are on the board to coordinate with architects, plumbing contractors and plumbers to utilize the best plumbing techniques and to get the best from the products.



CPVC PRO

ABOUT **ASTRAL CPVC PRO**[®]

Astral CPVC PRO is a class apart in the category, it is more than just a hot and cold plumbing system. To us it is an initiative, to deliver a world class plumbing solution.

Astral CPVC PRO are made from the specialty plastic, chemically known as Chlorinated Poly Vinyl Chloride [CPVC]. The CPVC compound shall meet cell class DP 110-2-3-2 as per IS:15778 and a maximum service temperature up to 93°C. The compound is carefully designed in our R & D and backed by our own expertise of manufacturing CPVC piping system from 25 years, which will give excellent results in all applications for CPVC piping system. It is unique combination of highest Impact resistance without any loss in pressure bearing capacity / Tensile strength or Vicat softening temperature. This will ensure best trouble free service and also stood notch above the initial installation issues of cracking / damages due to handling, storage and installation.



Astral CPVC Pro



The pipes are produced in copper tube size (CTS) from 15 mm (½”) to 50 mm (2”) with two different standard dimensional ratios - SDR 11 and SDR 13.5 (Class 1 & Class 2 respectively as per IS:15778) . The fittings are produced as per SDR 11. The pipes and fittings in SDR 11 class is complies to ASTM IS:15778 & IS:17546 standard. All Astral CPVC SDR 11 and SDR 13.5 pipes are made from identical CPVC compound material having same physical properties. The CPVC fittings are manufactured from compound material which meets all the requirement as per ASTM standard. Apart from having the same physical properties, SDR 11 and SDR 13.5 which are having different wall thickness and therefore, at any given temperature, they have different pressure ratings. For e.g.

Pipe Temperature Pressure Rating (°C)

GRADE	UNIT	23°C	82°C
SDR11	psi	400	100
	kg/cm ²	28.1	7.0
SDR13.5	psi	320	80
	kg/cm ²	22.5	5.6

Astral also manufacture CPVC PRO pipes in iron pipe size (IPS), available sizes are 65 mm (2½”) to 300 mm (12”) in SCH 40 and SCH 80 which meets the requirements of ASTM F 441. The pressure ratings varies with schedule pipe size and temperature. CPVC pipes of Copper Tube Size (CTS) dimensions can also be connected to CPVC (IPS) dimensions by using IPS x CTS fittings.

STANDARDS & SPECIFICATIONS

ASTM D1784 Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.

ASTM D2846 Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Hot & Cold water distribution systems.

ASTM F493 Standard Specification for Solvent Cements for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe & Fittings.

ASTM F441 Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe, SCH 40 & 80.

ASTM F438 Socket-Type Chlorinated Polyvinyl Chloride Plastic Pipe Fittings. SCH 40.

ASTM F439 Socket-Type Chlorinated Polyvinyl Chloride Plastic Pipe Fittings. SCH 80.

ASTM D2774 Underground installation of Thermoplastic pipes.

IS:15778 Chlorinated poly vinyl chloride (CPVC) pipe for potable hot & cold water distribution supplies.

IS:17546 Chlorinated Polyvinyl Chloride (CPVC) Fittings For Potable Hot And Cold Water Distribution Supplies.

PRODUCT RANGE

Class 1 (SDR 11) & Class 2 (SDR 13.5): 15 mm (½") to 50 mm (2") CTS -Confirming to IS:15778:2007 & IS:17546 As per ASTM D2846

SCH 40: 65 mm (2½") to 150 mm (6") IPS As per ASTM F441 & ASTM F438

SCH 80: 65 mm (2½") to 300 mm (12") IPS As per ASTM F441 & ASTM F439

MARKING & UNIFORMITY

Pipes and fittings made from CPVC compound are clearly marked with the manufacturers trademark, material designation, applicable ASTM standard.

SDR 11 Pipe: Tan coloured with red stripe

SDR 13.5 Pipe: Tan coloured with brown stripe

SDR 11 fittings: Tan colour

SCH 40 Pipe: Tan colour with brown stripe

SCH 40 fittings: Tan colour

SCH 80 Pipe: Tan colour with red stripe

SCH 80 fittings: Tan colour / Grey colour



Astral CpvC Propiping System is the Best Choice for Hot and Cold Potable Water Distribution



The Raw Material

Astral CPVC Pro pipes and fittings are manufactured with specially designed CPVC Compound formulated by Astral itself. The compound is mixture of imported CPVC Resin and other ingredients like Impact Modifiers, Lubricants, UV stabilizers etc.

The compound for pipes and fittings are carefully designed in our R&D facility and checked for different properties like Dynamic Thermal Stability, Fusion, Torque and all other rheological properties. Thus designed CPVC compound can give highest processibility as well as best Physical and Mechanical properties.

The compound meets or exceed all requirements for cell classification for IS:15778 & IS:17546 ASTM D2846.

The material is also approved by NSF for its safe use with potable water and thus completely safe for drinking water.

About NSF Approval

Astral Limited is proud to announce that Astral CPVC PRO is approved by NSF International, a leading global independent public health and safety organization. To receive certification, Astral Limited submitted product samples to NSF that underwent rigorous testing to recognized standards and agreed to unannounced manufacturing facility audits and periodic retesting to verify continued conformance to the standards. Find us in the NSF water listings by visiting <http://www.nsf.org/certified-products-systems>.

ABOUT NSF INTERNATIONAL

NSF International is a global independent organization that writes standards and protocols and tests and certifies products for the food, water and consumer goods industries to minimize adverse health effects and protect the environment. NSF operates in over 165 countries. Founded in 1944, NSF is a Pan American Health Organization/World Health Organization Collaborating Center on Food Safety, Water Quality and Indoor Environment.

Why Astral CPVC Pro

Introduced CPVC for the First Time in India

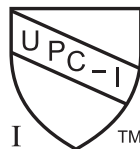
There was a time when CPVC pipes were not accepted by the industry. This was mainly because GI pipes were 30% cheaper than CPVC pipes. So strength of steel and cost were major factors why GI pipes were norms. But Astral introduced CPVC pipes in India for the first time embarking upon anti-corrosion and hot water compatibility. Since then, Astral CPVC has been a flagship CPVC product leading the way in the market.



Highest Number of Certifications

NSF, BIS and IAPMO Certifications : Astral the only pipe manufacturing company in India having most prestigious quality approval from National Sanitation Foundation (NSF), Bureau of Indian Standards (BIS) and certifications from IAPMO.

'GRIHA' and 'GreenPro' certifications, ensuring a harmonious blend of environmental responsibility and high-quality performance



*ONLY THOSE PRODUCTS BEARING THE ABOVE MARKS ARE CERTIFIED.

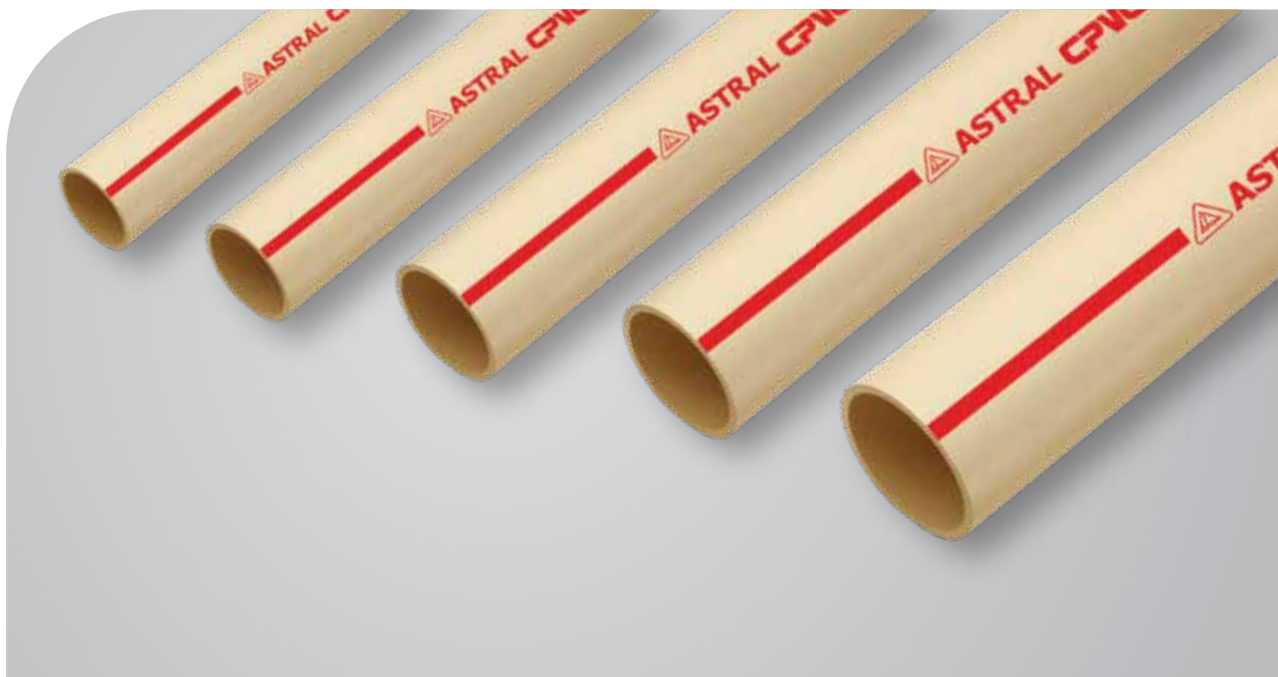
State of the Art Manufacturing

Astral is equipped with state of art manufacturing facilities at Santej, Hosur, Ghiloth and Cuttack plants. High speed and accurate extruders and injection molding machines including innovative manufacturing techniques being used to manufacture the ultra modern, errorless Astral CPVC PRO pipes and fittings.



Widest Product Range

Astral is the only company that provides the pipes with sizes ranging from 1/2" to 12" diameter. Hence you can meet any requirement with this widest range of CPVC pipes.



Total Backward Integration

All of Astral's CPVC Pipes and Fittings are made from CPVC Compound which is manufactured and controlled by Astral at every stage of the process. This backward integration helps us consistently maintain the highest quality for all pipes and fittings.

Skill Development Initiatives for Plumbers

Astral provides training to plumbers and plumbing contractors throughout the year by updating them about modern plumbing techniques and to do plumbing work more effectively and professionally.

KEY PROPERTIES AND BENEFITS



CORROSION RESISTANCE

Astral CPVC PRO piping system gives excellent resistance even under the harshest of water conditions so there are none of the purity worries from corrosion of metal pipe or soldered joints. Astral CPVC PRO pipe keeps pure water pure.



UNAFFECTED BY CHLORINE IN WATER

Some materials may be adversely affected by chlorine contained in the water supply, which can cause breakdown of the polymer chains and potential leaks. In this respect, Astral CPVC PRO piping system is unaffected by the chlorine present in potable water supply.



LOWER BACTERIAL GROWTH

Bacteria build up with CPVC piping system is far lower than with alternative piping materials due to very smooth internal surface. It does not deteriorate quality of water and prevents contamination, unpleasant odour, bad taste and discolouration of water.



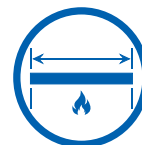
HOT WATER COMPATIBLE

Astral CPVC PRO piping system is compatible with both hot and cold water. It withstand very high temperature upto 93°C. Many solar, electric and gas water heaters have CPVC piping system for heat efficiency and lower installation cost.



NO SCALE, PIT OR LEACH FORMATION

Even after years of use in the most aggressive conditions, this pipe won't corrode, standing against low pH water, coastal salt, air exposures and corrosive soils. It stays as solid and reliable as the day it was installed, maintaining full water carrying capacity.



LOW THERMAL EXPANSION

Astral CPVC PRO piping system has a lower coefficient of thermal expansion, reducing the amount that the pipe expands when hot water is running, again reducing unsightly 'looping' of the pipe.



EASY PLUMBING PROCESS

CPVC uses a simple, solvent cement jointing method. Tools required are very simple and inexpensive (chamfering tool and pipe cutter only) and avoid the need for an electrical source. Also due to superior insulation properties compare to copper and GI, this system saves installation cost.



FIRE SAFETY

CPVC has a Limiting Oxygen Index (LOI) of 60. Thus in air, Astral CPVC PRO pipe does not support combustion. No flaming drips, does not increase the fire spreading, No flame spread & low smoke generation.



STRONG & DURABLE MATERIAL

Astral CPVC PRO piping system has a much higher strength than other thermoplastics used in plumbing. Hence, it needs less hangers and supports and there is no unsightly looping of the pipe. It has a higher pressure bearing capability, leading to the same flow rate with a smaller size. Also having high UV resistance, life span is more than 50 years.



APPROVED WORLD WIDE

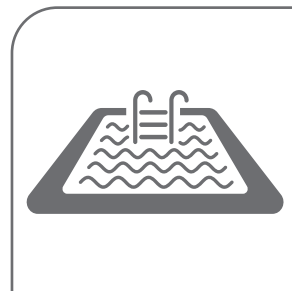
CPVC piping system is approved for contact with potable water in wide range of countries including USA, UK, Canada, Germany, France, The Netherlands, Middle East, Africa etc.

Fields Of Applications

Astral CPVC PRO Pipes are ideal for
Hot and Cold water applications in

- Homes, apartments
- Hotels, resort
- Hospitals
- High and low rise buildings
- Corporate and commercial houses
- Academic institutes

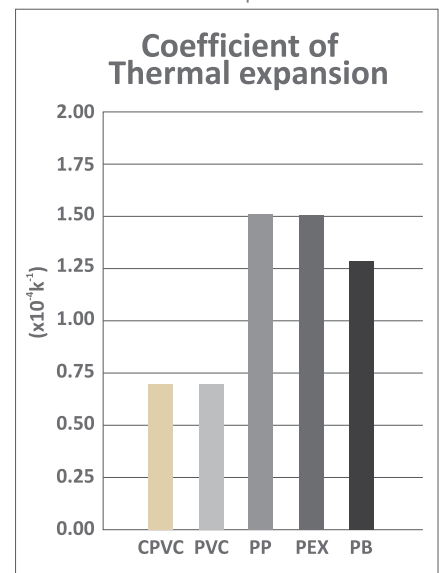
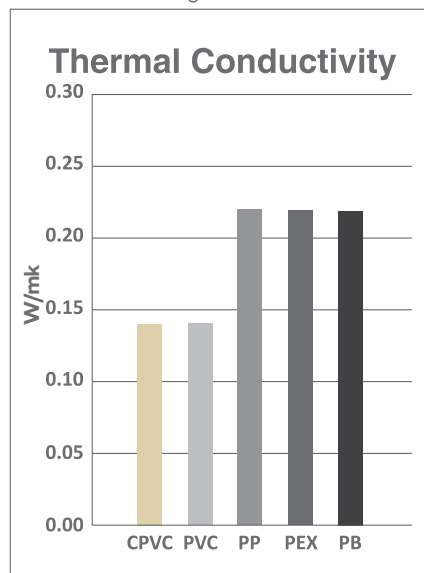
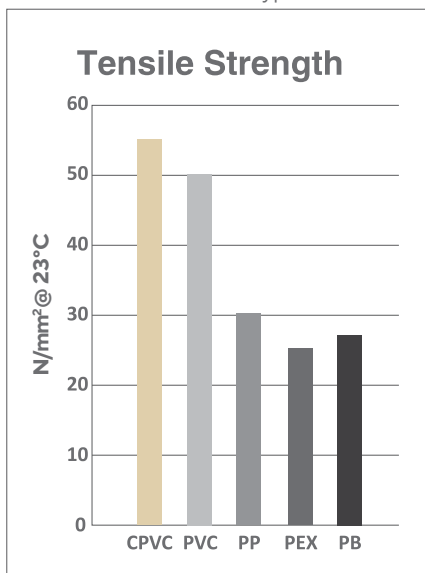
etc. for pure and hygienic water supply.



Basic Physical Properties

PROPERTY	TEST METHOD	ENGLISH UNIT	SI UNIT
GENERAL PROPERTIES			
Specific Gravity @ 23°C	ASTM D792	1.50 g/cm ³	1.50 g/cm ³
Specific volume @ 23°C	-	0.666 cm ³ /g	0.666 cm ³ /g
Water Absorption @ 23°C	ASTM D570	0.02%	0.02%
Water Absorption @ 100°C	ASTM D570	0.50%	0.50%
Cell Class	ASTM D1784	23447-B	D.P.110-2-3-2
Rockwell Hardness @ 23°C	ASTM D785	119	-
MECHANICAL PROPERTIES			
Izod Impact (Notched) @ 23°C	ASTM D256	4.5ft.lbs/in	267 J/m
Tensile Strength @ 23°C	ASTM D638	8000 psi	55 N/mm ²
Tensile Modulus @ 23°C	ASTM D638	3,94,000 psi	2710 N/mm ²
Flexural Strength @ 23°C	ASTM D790	15,100 psi	104N/mm ²
Flexural Modulus @ 23°C	ASTM D790	4,15,100 psi	2860N/mm ²
Compressive Strength @ 23°C	ASTM D695	10,200 psi	71 N/mm ²
Compressive Modulus @ 23°C	ASTM D695	1,97,500 psi	1360 N/mm ²
THERMAL PROPERTIES			
Coefficient of Thermal Expansion	ASTM D696	3.4X10 ⁻⁵ in/in/°f	6.3 X10 ⁻⁵ m/m/°K
Thermal Conductivity	ASTM C177	0.95 BTU/(hr.ft ² .°F)	0.14 W/mk
Heat Distortion Temperature	ASTM D648	221°F	105°C
Heat Capacity@23°C	DSC	0.21BTU/lb°F	0.90 J/gK
Heat Capacity@100°C		0.26 BTU/lb°F	1.10 J/gK
FLAMMABILITY			
Flammability Rating	UL94	0.062inch/0.157cm	V0,5VA&5VB
Burning Rate	ASTM D635	Self Extinguishing	Self Extinguishing
Flame spread	ASTM E84	15	-
Smoke developed	ASTM E84	70-125	-
Limiting oxygen index	ASTM D2863	60%	-
Burning Rate	ASTM D635	Self Extinguishing	
ELECTRICAL			
Dielectric Strength	ASTM D147	1250 V/mil	492,000 V/cm
Dielectric Constant @ 60Hz, -1°C	ASTM D150	3.7	3.7
Power Factor @ 1000 Hz	ASTM D150	0.007%	0.007%
Volume Resistivity @ 23°C	ASTM D257	3.4x10 ¹⁵ ohm/cm	3.4x10 ¹⁵ ohm/cm

Note: Above values are typical values. It should be used as a general recommendation. Do not consider as a specification



Technical Details

Nominal Size			Outside Diameter, Inch (mm)				Wall Thickness, Inch (mm)				Pipe Pr. R. psi (kg/cm ²)			
cm	(mm)	in.	Average		Tolerance		Minimum		Tolerance		73.4°F	(23°C)	180°F	(82°C)
Outside Diameters and Wall Thicknesses For CPVC 4120, SDR 11 Plastic Pipe As Per ASTM D-2846 & conforming to IS: 15778														
1.5	(15)	½*	0.625	(15.9)	± 0.003	(0.08)	0.068	(1.73)	+ 0.020	(0.51)	400	(28.1)	100	(7.0)
2.0	(20)	¾	0.875	(22.2)	± 0.003	(0.08)	0.080	(2.03)	+ 0.020	(0.51)	400	(28.1)	100	(7.0)
2.5	(25)	1	1.125	(28.6)	± 0.003	(0.08)	0.102	(2.59)	+ 0.020	(0.51)	400	(28.1)	100	(7.0)
3.2	(32)	1¼	1.375	(34.9)	± 0.003	(0.08)	0.125	(3.18)	+ 0.020	(0.51)	400	(28.1)	100	(7.0)
4.0	(40)	1½	1.625	(41.3)	± 0.004	(0.10)	0.148	(3.76)	+ 0.020	(0.51)	400	(28.1)	100	(7.0)
5.0	(50)	2	2.125	(54.0)	± 0.004	(0.10)	0.193	(4.90)	+ 0.023	(0.58)	400	(28.1)	100	(7.0)

* For ½" wall thickness minimum is not a function of SDR.

Pr. R. = Pressure Rating

Nominal Size			Outside Diameter, Inch (mm)				Wall Thickness, Inch (mm)				Pipe Pr. R. psi (kg/cm ²)			
cm	(mm)	in.	Average		Tolerance		Minimum		Tolerance		73.4°F	(23°C)	180°F	(82°C)
Outside Diameters and Wall Thicknesses For CPVC 4120, SDR 13.5 Plastic Pipe conforming to IS: 15778														
1.5	(15)	½*	0.625	(15.9)	± 0.003	(0.08)	0.055	(1.40)	+ 0.020	(0.51)	320	(22.5)	80	(5.6)
2.0	(20)	¾	0.875	(22.2)	± 0.003	(0.08)	0.065	(1.65)	+ 0.020	(0.51)	320	(22.5)	80	(5.6)
2.5	(25)	1	1.125	(28.6)	± 0.003	(0.08)	0.083	(2.12)	+ 0.020	(0.51)	320	(22.5)	80	(5.6)
3.2	(32)	1¼	1.375	(34.9)	± 0.003	(0.08)	0.102	(2.59)	+ 0.020	(0.51)	320	(22.5)	80	(5.6)
4.0	(40)	1½	1.625	(41.3)	± 0.004	(0.10)	0.120	(3.06)	+ 0.020	(0.51)	320	(22.5)	80	(5.6)
5.0	(50)	2	2.125	(54.0)	± 0.004	(0.10)	0.157	(4.00)	+ 0.023	(0.58)	320	(22.5)	80	(5.6)

* For ½" wall thickness minimum is not a function of SDR.

Pr. R. = Pressure Rating

Nominal Size			Outside Diameter, Inch (mm)				I.D. Inch (mm)	Wall Thickness, Inch (mm)				Pipe Pr. R. psi (kg/cm ²)		
cm	(mm)	in.	Average		Tolerance		Average	Minimum		Tolerance		73.4°F	(23°C)	
Outside Diameters, Wall Thickness & Pressure Rating For CPVC 4120, Schedule 40 Piping System As per ASTM F 441														
6.5	(65)	2½	2.875	(73.0)	± 0.007	(0.18)	2.444	(62.07)	0.203	(5.16)	+ 0.024	(0.61)	300	(21.10)
8.0	(80)	3	3.500	(88.9)	± 0.008	(0.20)	3.041	(77.26)	0.216	(5.49)	+ 0.026	(0.66)	260	(18.28)
10.0	(100)	4	4.500	(114.3)	± 0.009	(0.23)	3.998	(101.55)	0.237	(6.02)	+ 0.028	(0.71)	220	(15.47)
15.0	(150)	6	6.625	(168.3)	± 0.011	(0.28)	6.03	(153.2)	0.280	(7.11)	+ 0.034	(0.86)	180	(12.66)

Pr. R. = Pressure Rating

Nominal Size			Outside Diameter, Inch (mm)				I.D. Inch (mm)	Wall Thickness, Inch (mm)				Pipe Pr. R. psi (kg/cm ²)		
cm	(mm)	in.	Average		Tolerance		Average	Minimum		Tolerance		73.4°F	(23°C)	
Outside Diameters, Wall Thickness & Pressure Rating For CPVC 4120, Schedul 80 Piping System As per ASTM F 441														
6.5	(65)	2½	2.875	(73.0)	± 0.007	(0.18)	2.288	(58.14)	0.276	(7.01)	+ 0.033	(0.84)	420	(29.53)
8.0	(80)	3	3.500	(88.9)	± 0.008	(0.20)	2.864	(72.75)	0.300	(7.62)	+ 0.036	(0.91)	370	(26.01)
10.0	(100)	4	4.500	(114.3)	± 0.009	(0.23)	3.778	(95.97)	0.337	(8.56)	+ 0.040	(1.02)	320	(22.50)
15.0	(150)	6	6.625	(168.3)	± 0.011	(0.28)	5.710	(145.04)	0.432	(10.97)	+ 0.052	(1.32)	280	(19.69)
20.0	(200)	8	8.625	(219.1)	± 0.015	(0.38)	7.565	(192.15)	0.500	(12.70)	+ 0.060	(1.52)	250	(17.57)
25.0	(250)	10	10.750	(273.1)	± 0.015	(0.38)	9.493	(241.12)	0.593	(15.06)	+ 0.071	(1.80)	230	(16.17)
30.0	(300)	12	12.750	(323.90)	± 0.015	(0.38)	11.294	(286.87)	0.687	(17.45)	+ 0.082	(2.08)	230	(16.17)

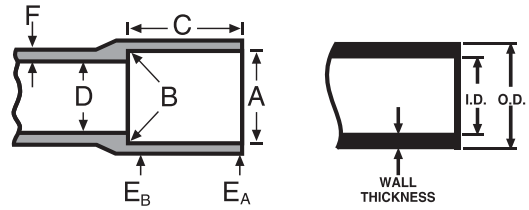
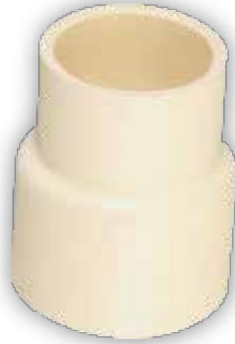
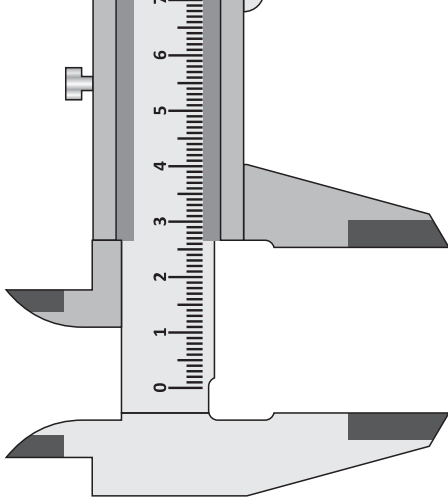
Pr. R. = Pressure Rating

Temperature Derating Factors

Working Temperature (°F)	73-80	90	100	120	140	160	180	200
Working Temperature (°C)	23-25	32	38	49	60	71	82	93
Pipe Derating Factor	1.00	0.91	0.82	0.65	0.50	0.40	0.25	0.20
Valve Derating Factor	1.00	0.95	0.90	0.80	0.70	0.61	0.53	0.45

N.B.: For obtaining working pressure in system, multiply the maximum pressure with derating factor at the working temperature of system.

* Valves, Unions & Speciality Products have different elevates temperature rating than pipe.



Nominal Size		Socket Entrance Diameter inch (mm)		Socket Bottom Diameter inch (mm)		Socket Length inch (mm)		Inside Diameter inch (mm)		Wall Thickness in (mm)		
(in.)	(mm)	'A' Average	'A' Tolerance	'B' Average	'B' Tolerance	'C' min.	'D' min.	'E _A ' min.	'E _B ' min.	'F' min.		

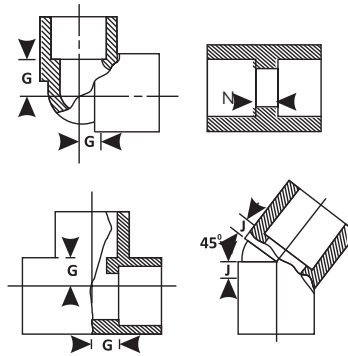
Tapered Socket Dimensions For CPVC 4120, SDR 11, Plastic Pipe Fittings AS PER ASTM D2846

½	(15)	0.633	(16.08) ±0.003	(0.08)	0.619	(15.72) ±0.003	(0.08)	0.500	(12.70)	0.489	(12.42)	0.068	(1.73)	0.102	(2.59)	0.128	(3.25)
¾	(20)	0.884	(22.45) ±0.003	(0.08)	0.870	(22.10) ±0.003	(0.08)	0.700	(17.78)	0.715	(18.16)	0.080	(2.03)	0.102	(2.59)	0.128	(3.25)
1	(25)	1.135	(28.83) ±0.003	(0.08)	1.121	(28.47) ±0.003	(0.08)	0.900	(22.86)	0.921	(23.39)	0.102	(2.59)	0.102	(2.59)	0.128	(3.25)
1¼	(32)	1.386	(35.20) ±0.003	(0.08)	1.372	(34.85) ±0.003	(0.08)	1.100	(27.94)	1.125	(28.58)	0.125	(3.18)	0.125	(3.18)	0.156	(3.96)
1½	(40)	1.640	(41.66) ±0.004	(0.10)	1.622	(41.20) ±0.004	(0.10)	1.300	(33.02)	1.329	(33.76)	0.148	(3.76)	0.148	(3.76)	0.185	(4.70)
2	(50)	2.141	(54.38) ±0.004	(0.10)	2.123	(53.92) ±0.004	(0.10)	1.700	(43.18)	1.739	(44.17)	0.193	(4.90)	0.193	(4.90)	0.241	(6.12)

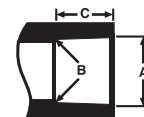
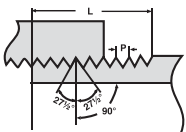
Nominal Size		(G) min. inch	(J) min. inch	(N) min. inch
(mm)	(in.)			

Minimum Dimensions from Center to End of Socket (Laying Length) for CPVC 4120, SDR 11 Plastic Tubing Fittings* Per ASTM D 2846

15	½	0.382	0.183	0.102
20	¾	0.507	0.235	0.102
25	1	0.633	0.287	0.102
32	1¼	0.758	0.339	0.102
40	1½	0.884	0.391	0.102
50	2	1.134	0.495	0.102



BSPT



Nominal Size		Threads (Per Inch)	Effective Thread Length (L) mm	Pitch of Thread (P) mm
(mm)	(in.)			

BSP ISO 7/1 Parallel Threads

15	½	14	13.152	1.8143
20	¾	14	14.514	1.8143
25	1	11	16.714	2.3091
32	1¼	11	19.050	2.3091
40	1½	11	19.050	2.3091
50	2	11	23.378	2.3091
65	2½	11	26.698	2.3091
80	3	11	29.873	2.3091
100	4	11	35.791	2.3091

Nominal Size		Diameter (in)			Socket Length Minimum C (in)	
(mm)	(in.)	Socket Entrance A	Socket Bottom B	Tolerance	SCH 40	SCH 80

Basic Socket Dimensions

Schedule 40 CPVC Fittings As Per ASTM F 438

Schedule 80 CPVC Fittings As Per ASTM F 439

65	2½	2.889	2.868	±0.007	1.750	1.750
80	3	3.516	3.492	±0.008	1.875	1.875
100	4	4.518	4.491	±0.009	2.000	2.250
150	6	6.647	6.614	±0.011	3.000	3.000
200	8	8.655	8.610	±0.015	4.000	4.000
250	10	10.780	10.735	±0.015	5.000	5.000
300	12	12.780	12.735	±0.015	6.000	6.000

Fluid Handling Characteristics of Astral CPVC Pro Pipes

LINEAR FLUID FLOW VELOCITY

The linear velocity of a flowing fluid in a pipe is calculated from :

$$V = \frac{0.4085g}{d^2}$$

Where V = Linear fluid flow velocity in feet per second

g = Flow rate in gallons per minute

d = Inside diameter of pipe in inches

The values in the following tables are based on this formula. These values are accurate for all fluids.

Linear fluids flows velocity in a system should generally be limited to 5 ft/s, particularly for pipe size 6" and grater. Following this guideline will minimize risk of hydraulic shock damage due to water hammer surge pressures.

FRICTION LOSS IN PIPES

A great advantage that Astral CPVC PRO piping system enjoys over its metallic piping system is a smooth inner surface which is resistant to scaling and fouling. This means that friction pressure losses in the fluid flow are minimized from the beginning and do not significantly increase as the system ages, as can be the case with metal pipes subject to scaling and fouling.

The Hazen-Willims formula is the generally accepted method of calculating friction head losses in piping systems. The values in the following fluid tables are based on this formula and a surface roughness constants for other piping materials are given beside:

$$f = 0.2083 \times \left(\frac{100}{C} \right)^{1.852} \frac{g^{1.852}}{d^{4.8655}}$$

Where f = Friction head in feet of water per 100 feet of pipe

d = Inside diameter of pipe in inches

g = Flow rate in gallons per minute

c = pipe surface roughness constant

CONSTANT (C) TYPE OF PIPE

- 150 - CPVC pipe, new-40 years old
- 130-140 - steel / cast iron pipe, new
- 125 - steel pipe, old
- 120 - cast iron, 4 - 12 years old galvanized steel
- 100 - cast iron, 13 - 20 years old
- 60 - 80 - cast iron, worn / pitted

FRICTION LOSS IN FITTINGS

Friction losses through fittings are calculated from the equivalent length of straight pipe which would produce the same friction loss in the fluid. The equivalent lengths of pipe for common fittings are given here.

Nominal Size (in.)	90° Standard Elbow (feet)	45° Standard Elbow (feet)	Standard Tee Run Flow (feet)	Standard Tee Branch Flow (feet)
½	1.55	0.83	1.04	3.11
¾	2.06	1.10	1.37	4.12
1	2.62	1.40	1.75	5.25
1¼	3.45	1.84	2.30	6.90
1½	4.03	2.15	2.68	8.05
2	5.17	2.76	3.45	10.30
2½	6.10	3.30	4.10	12.20
3	7.60	4.10	5.10	15.20
4	10.00	5.30	6.70	20.00
6	15.10	8.00	10.10	30.20
8	19.90	10.60	13.20	39.70
10	24.90	13.30	16.60	49.90
12	29.70	15.90	19.80	59.40

WATER HAMMER SURGE PRESSURE

Whenever the flow rate of fluid in a pipe is changing, there is a surge in pressure known as water hammer, The longer the line and the faster the fluid is moving, the greater the hydraulic shock will be. Water hammer may be caused by opening or closing a valve, starting or stopping a pump, or the movement of entrapped air through the pipe. The maximum water hammer surge pressure may be calculated from :

$$P_{wh} = \frac{p \Delta V}{g_c} \left[\frac{p}{g_c} \left(\frac{1+d}{K b E} \right) \right]^{1/2}$$

Where Pwh= Maximum surge pressure, psi

p = Fluid density

ΔV = Change in fluid velocity

g_c = Gravitational constant

K = Bulk modulus of elasticity of fluid

b = Pipe wall thickness

E = Pipe material bulk modulus of elasticity

d = Pipe inside diameter

The value in the following tables are based on this formula at 73°F and the assumption that water flowing at a given rate of gallons per minute is suddenly completely stopped. At 180°F, the surge pressure is approximately 15% less. The value for fluids other than water may be by multiplying by the square root of the fluid's specific gravity.

THE WATER HAMMER SURGE PRESSURE PLUS THE SYSTEM OPERATING PRESSURE SHOULD NOT EXCEED THE RECOMMENDED WORKING PRESSURE RATING OF THE SYSTEM.

In order to minimize hydraulic shock due to water hammer, linear fluid flow velocity should generally be limited to 5ft/s. Velocity at system start-up should be limited to 1 ft/s during filling until it is certain that all air has been flushed from the system and pressure has been brought up to operating conditions. Pump should not be allowed to draw in air.

Where necessary, extra protective equipment may be used to prevent water hammer damage, such equipment might include pressure relief valves, shock absorbers, surge arrestors and vacuum air relief valves.

FRICTION LOSS AND FLOW VELOCITY FOR SDR 11 CTCPVC THERMOPLASTIC PIPE

(Friction head and Friction Loss are per 100 feet of pipe)

Gallons Per Minute	1/2 in			3/4 in			1 in			1 1/4 in			1 1/2 in			2 in		
	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)
1	1.71	3.19	1.38	0.80	0.50	0.22	0.48	0.15	0.06									
2	3.42	11.53	5.00	1.60	1.82	0.79	0.96	0.53	0.23									
3	5.16	24.43	10.59	2.40	3.85	1.67	1.44	1.12	0.49									
4	6.83	41.62	18.04	3.20	6.55	2.84	1.93	1.91	0.83									
5	8.54	62.91	27.27	4.00	9.91	4.29	2.41	2.89	1.25	1.09	0.47	1.16	0.49	0.21	0.68	0.13	0.06	
6	10.25	88.18	38.23	4.79	13.89	6.02	2.89	4.05	1.76									
7	11.96	117.32	50.86	5.59	18.47	8.01	3.37	5.39	2.34									
8	13.67	150.23	65.13	6.39	23.66	10.26	3.85	6.90	2.99									
9	15.38	186.85	81.00	7.19	29.42	12.76	4.33	8.59	3.72									
10	17.08	227.11	98.45	7.99	35.76	15.50	4.82	10.43	4.52	3.94	1.71	3.23	3.94	1.75	2.31	1.75	0.76	0.21
15				11.99	75.78	32.85	7.22	22.11	9.58	8.35	3.62	4.84	8.35	3.71	3.47	3.71	1.61	0.45
20				15.98	129.11	55.97	9.63	37.67	16.33	14.23	6.17	6.46	14.23	6.33	4.63	6.33	2.74	0.76
25							12.04	56.94	24.69	21.51	9.33	8.07	21.51	9.33	5.78	9.56	4.15	1.15
30							14.45	79.82	34.60	30.15	13.07	9.68	30.15	13.07	6.94	13.40	5.81	1.62
35							16.86	106.19	46.03	40.11	17.39	11.30	40.11	17.39	8.09	17.83	7.73	2.15
40										51.37	22.27	12.91	51.37	22.27	9.25	22.83	9.90	2.75
45										63.89	27.70	14.52	63.89	27.70	10.41	28.40	12.31	3.42
50										77.66	33.66	16.14	77.66	33.66	11.56	34.52	14.96	4.16
55										92.65	40.16	17.75	92.65	40.16	12.72	41.18	17.85	4.96
60															13.88	48.38	20.97	5.83
70															16.19	64.37	27.90	7.76
80																		9.93
90																		12.35
100																		15.02
125																		22.70

CAUTION : Flow velocity should not exceed 5 feet per second. Velocities in excess of 5 feet per second may result in system failure and property damage.

CARRYING CAPACITY AND FRICTION LOSS FOR SCHEDULE 40 CPVC THERMOPLASTIC PIPE

(Independent variables : Gallons per minute and nominal pipe size O.D. • Dependent variables : Velocity, Friction head and pressure drop per 100 feet of pipe, interior smooth.)

Gallons Per Minute	3 in			4 in			6 in			8 in			10 in			12 in			2 ½ in				
	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Maximum Surge Pressure (PSI)	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Maximum Surge Pressure (PSI)	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Maximum Surge Pressure (PSI)	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Maximum Surge Pressure (PSI)	Flow Velocity (Feet Per Second)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Friction Pressure Loss (PSI Per 100 Ft.)	Maximum Surge Pressure (PSI)			
1																							
3																							
5																							
7																							
9																							
10	0.441	0.031	0.013	7.870																0.478	0.014	0.020	9.142
15	0.662	0.066	0.029	11.805																0.615	0.074	0.032	11.754
20	0.883	0.113	0.049	15.740	0.511	0.030	0.013	8.420												0.683	0.090	0.039	13.060
25	1.103	0.170	0.074	19.675	0.639	0.045	0.019	10.525												1.024	0.191	0.083	19.590
30	1.324	0.238	0.103	23.610	0.767	0.063	0.027	12.630												1.367	0.326	0.141	26.120
35	1.545	0.317	0.137	27.545	0.894	0.084	0.036	14.735												1.708	0.492	0.213	32.650
40	1.766	0.406	0.176	31.480	1.022	0.107	0.046	16.840												2.050	0.690	0.298	39.180
45	1.986	0.505	0.218	35.415	1.150	0.134	0.058	18.945												2.391	0.918	0.397	45.710
50	2.207	0.614	0.265	39.350	1.278	0.162	0.070	21.050												2.733	1.176	0.508	52.240
60	2.648	0.861	0.372	47.220	1.533	0.228	0.098	25.260												3.075	1.463	0.632	58.770
70	3.090	1.145	0.495	55.090	1.789	0.303	0.131	29.470												3.415	1.778	0.768	65.300
80	3.531	1.486	0.634	62.960	2.044	0.388	0.168	33.680												4.100	2.492	1.077	78.360
90	3.973	1.824	0.755	70.830	2.300	0.483	0.209	37.890												4.783	3.315	1.433	91.420
100	4.414	2.217	0.958	78.700	2.555	0.587	0.254	42.100												5.466	4.245	1.835	104.480
125	5.517	3.351	1.449	98.375	3.194	0.887	0.383	52.625												6.149	5.280	2.282	117.540
150	6.621	4.699	2.031	118.050	3.833	1.243	0.537	63.150												6.833	6.418	2.774	130.600
175	7.724	6.250	2.701	137.725	4.472	1.654	0.715	73.675												8.541	9.702	4.192	163.250
200	8.828	8.003	3.459	157.400	5.111	2.117	0.915	84.200															
250					6.389	3.201	1.384	105.250															
300					7.666	4.487	1.939	126.300															
350					8.944	5.969	2.580	147.350															
400																							
450																							
500																							
750																							
1000																							
1250																							
1500																							
1750																							

CAUTION : Flow velocity should not exceed 5 feet per second. • CPVC pipe can not be used for compressed air service.

CARRYING CAPACITY AND FRICTION LOSS FOR SCHEDULE 80 CPVC THERMOPLASTIC PIPE

(Independent variables: Gallons per minute and nominal pipe size O.D. • Dependent variables: Velocity, Friction head and pressure drop per 100 feet of pipe, interior smooth.)

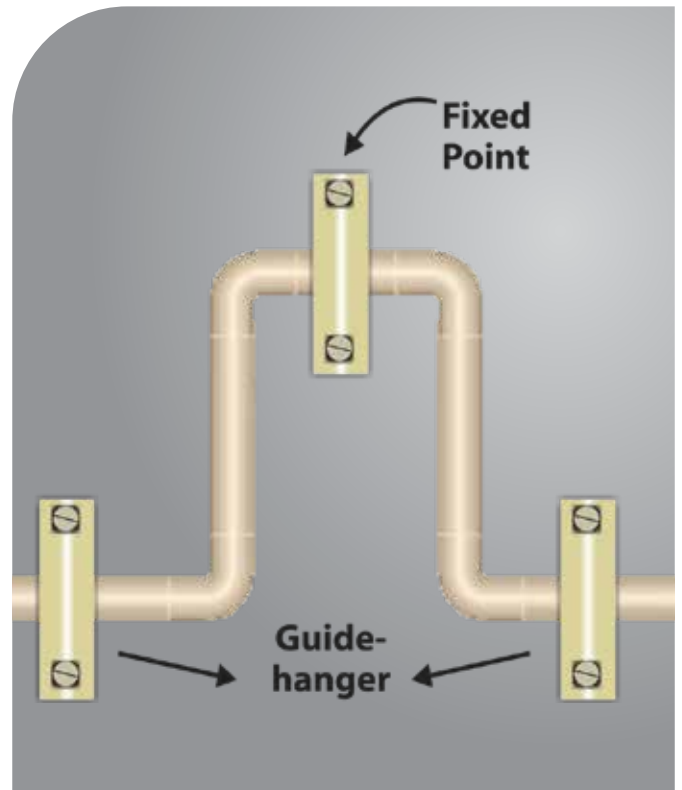
Gallons Per Minute	3 in			4 in			6 in			8 in			10 in			12 in			2½ in						
	Maximum Surge Pressure (PSI)	Friction Pressure Loss (PSI Per 100 Ft.)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Flow Velocity (Feet Per Second)	Maximum Surge Pressure (PSI)	Friction Pressure Loss (PSI Per 100 Ft.)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Flow Velocity (Feet Per Second)	Maximum Surge Pressure (PSI)	Friction Pressure Loss (PSI Per 100 Ft.)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Flow Velocity (Feet Per Second)	Maximum Surge Pressure (PSI)	Friction Pressure Loss (PSI Per 100 Ft.)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Flow Velocity (Feet Per Second)	Maximum Surge Pressure (PSI)	Friction Pressure Loss (PSI Per 100 Ft.)	Friction Head Loss (Ft. of Water Per 100 Ft.)	Flow Velocity (Feet Per Second)	Maximum Surge Pressure (PSI)	Friction Pressure Loss (PSI Per 100 Ft.)	Friction Head Loss (Ft. of Water Per 100 Ft.)		
1																									
3																									
5																									
7																									
9																									
10	0.498	0.042	0.018	10.500																	0.546	0.064	0.028	12.173	
15	0.747	0.089	0.038	15.750																	0.702	0.102	0.044	15.651	
20	0.996	0.151	0.065	21.000	0.570	0.039	0.017	11.220													0.780	0.124	0.054	17.390	
25	1.245	0.228	0.099	26.250	0.712	0.059	0.025	14.025													1.169	0.264	0.114	26.085	
30	1.494	0.320	0.138	31.500	0.855	0.082	0.036	16.830													1.559	0.449	0.194	34.780	
35	1.743	0.425	0.184	36.750	0.997	0.109	0.047	19.635													1.949	0.679	0.293	43.475	
40	1.992	0.545	0.235	42.000	1.140	0.140	0.061	22.440													2.339	0.951	0.411	52.170	
45	2.241	0.678	0.293	47.250	1.282	0.174	0.075	25.245													2.728	1.266	0.547	60.865	
50	2.490	0.823	0.356	52.500	1.425	0.212	0.092	28.050	0.627	0.029	0.012	11.500								3.118	1.621	0.701	69.560		
60	2.988	1.154	0.499	63.000	1.710	0.297	0.128	33.660	0.752	0.040	0.017	13.800								3.508	2.016	0.871	78.255		
70	3.486	1.536	0.664	73.500	1.995	0.395	0.171	39.270	0.877	0.054	0.023	16.100								3.898	2.450	1.059	86.950		
80	3.984	1.968	0.850	84.000	2.280	0.506	0.219	44.880	1.003	0.069	0.030	18.400								4.667	3.434	1.484	104.340		
90	4.482	2.446	1.057	94.500	2.565	0.629	0.272	50.490	1.128	0.085	0.037	20.700								5.457	4.569	1.975	121.730		
100	4.980	2.973	1.285	105.000	2.850	0.765	0.330	56.100	1.253	0.104	0.045	23.000								6.237	5.851	2.529	139.120		
125	6.225	4.494	1.943	131.250	3.562	1.156	0.500	70.125	1.567	0.157	0.068	28.750	0.892	0.040	0.017	15.375				7.016	7.277	3.146	156.510		
150	7.469	6.299	2.723	157.500	4.274	1.620	0.700	84.150	1.880	0.220	0.095	34.500	1.071	0.056	0.024	18.450				7.796	8.845	3.823	173.900		
175	8.714	8.381	3.622	183.750	4.987	2.155	0.932	98.175	2.193	0.292	0.126	40.250	1.249	0.074	0.032	21.525				9.745	13.372	5.780	217.375		
200	9.959	10.732	4.639	210.000	5.699	2.760	1.193	112.200	2.560	0.374	0.162	46.000	1.427	0.095	0.041	24.600	0.907	0.032	0.014						
250					7.124	4.173	1.804	140.250	3.133	0.566	0.244	57.500	1.784	0.144	0.062	30.750	1.133	0.048	0.021	15.200					
300					8.549	5.849	2.528	168.300	3.760	0.793	0.343	69.000	2.141	0.202	0.087	36.900	1.360	0.067	0.029	19.000					
350					9.974	7.781	3.363	196.350	4.386	1.055	0.456	80.500	2.498	0.268	0.116	43.050	1.587	0.089	0.038	22.800					
400									5.013	1.351	0.584	92.000	2.855	0.343	0.148	49.200	1.813	0.114	0.049	18.550					
450									5.639	1.680	0.728	103.500	3.212	0.427	0.185	55.350	2.040	0.142	0.061	21.200					
500									6.266	2.042	0.883	115.000	3.589	0.519	0.224	61.500	2.267	0.172	0.074	23.850					
750									9.399	4.327	1.870	172.500	5.353	1.100	0.475	92.250	3.400	0.365	0.158	26.500					
1000													7.137	1.874	0.810	123.000	4.533	0.621	0.269	39.750					
1250													8.921	2.833	1.224	153.750	5.667	0.939	0.406	53.000					
1500													10.706	3.970	1.716	184.500	6.800	1.316	0.569	66.250					
1750																	7.934	1.751	0.757	104.000					
2000																	9.067	2.243	0.969	120.000					

CAUTION: Flow velocity should not exceed 5 feet per second. • CPVC pipe can not be used for compressed air service.

Thermal Expansion and Contraction

Like all piping material, Astral CPVC PRO expands when heated and contracts when cooled. CPVC piping (regardless of pipe diameter) will expand about 1 inch per 50 feet of length when subjected to a 50° F temperature increase, therefore, allowances must be made for this resulting movement. However, laboratory testing and installation experience have demonstrated that the practical issues are much smaller than the coefficient of thermal expansion would suggest. The stresses developed in CPVC pipe are generally much smaller than those developed in metal pipe for equal temperature changes because of the difference in elastic modulus. Required loops are smaller than those recommended by the Copper Development Association for copper systems. Expansion is mainly a concern in hot water lines. Generally, thermal expansion can be accommodated with changes in direction.

However, a long straight run may require an offset or loop. Only one expansion loop, properly sized is required in any single straight run, regardless of its total length. If more convenient, two or more smaller expansion loops, properly sized, can be utilized in a single run of pipe to accommodate the thermal movement. Be sure to hang pipe with smooth straps that will not restrict movement. For convenience, loop (or offset) length have been calculated for different pipe sizes and different run length with a temperature increase (DT) of about 80°F. The results, shown in Tables A and B, are presented simply as a handy guide for quick and easy determinations of acceptable loop length for the approximate conditions. Loop length for other temperatures and run length can be calculated utilizing the following equations :



EXPANSION LOOP FORMULA

$$L = \sqrt{\frac{3 E D (\Delta L)}{2 S}}$$

Where:

- L = Loop Length (in.)
- E = Modulus of elasticity at maximum temperature (psi)
- S = Working stress at maximum temperature (psi)
- D = Outside diameter of pipe (in.)
- ΔL = Change in length due to change in temperature (in.)

THERMAL EXPANSION FORMULA

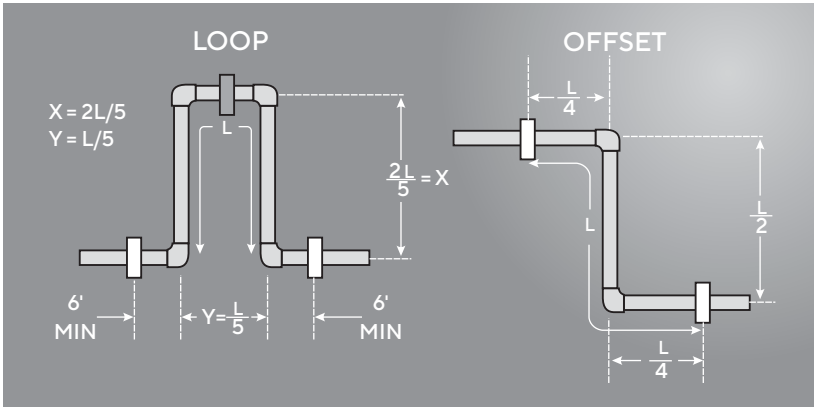
$$\Delta L = L_p C \Delta T$$

Where:

- ΔL = Change in length due to change temperature (in.)
- L_p = Length of pipe (in.)
- C = Coefficient of thermal expansion (in./ in./°F)
= 3.4×10^{-5} in./ in./°F for CPVC
- ΔT = Change in temperature (°F)



Thermal Expansion and Contraction



Modulus of Elasticity and Working Stress For CPVC

Temperature		Modulus, E (psi)	Stress, S (psi)
°F	°C		
73	(27)	423,000	2000
90	(32)	403,000	1800
110	(43)	371,000	1500
120	(49)	355,000	1300
140	(60)	323,000	1000
160	(71)	291,000	750
180	(82)	269,000	500

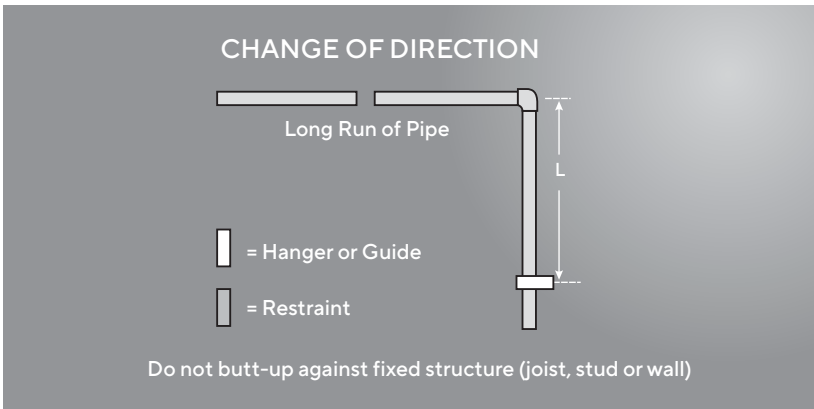


TABLE A
 ASTRAL CPVC PRO pipe CTS PIPES
 (ASTM D 2846)
 Calculated Loop (Offset) Length with
 ΔT of approx. 80°F in inches

Nominal Size		Length of Run Feet			
mm	in.	40	60	80	100
15	½	22	27	31	34
20	¾	26	32	36	41
25	1	29	36	41	46
32	1¼	32	40	46	51
40	1½	35	43	50	56
50	2	40	49	57	64

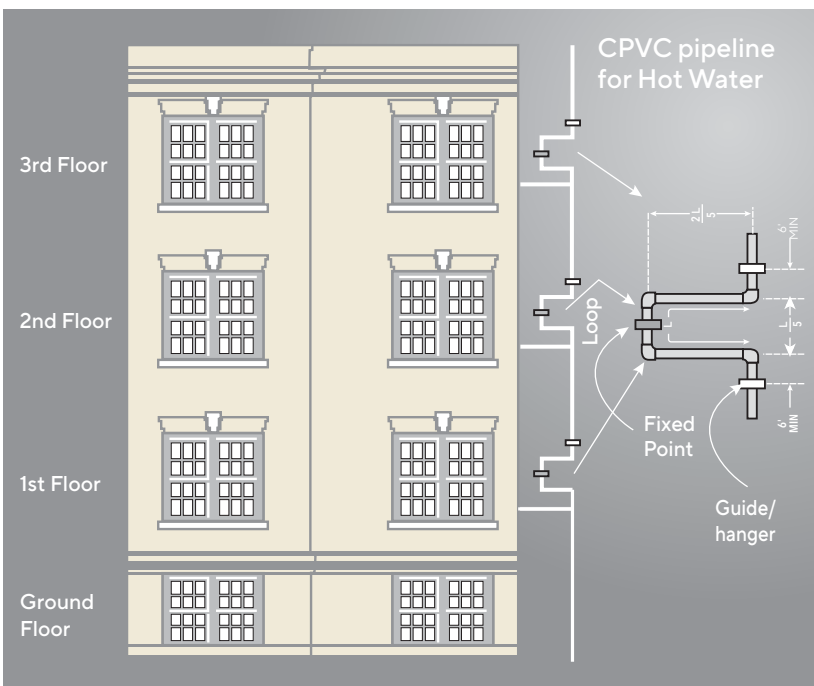


TABLE B
 ASTRAL CPVC PRO IPS PIPES
 (ASTM F 441)
 Calculated Loop (Offset) Length with
 ΔT of approx. 80°F in inches

Nominal Size		Length of Run Feet			
cm	in.	40	60	80	100
65	2½	47	57	66	74
75	3	52	63	73	82
100	4	58	72	83	92
150	6	71	87	100	112
200	8	81	99	114	128
250	10	90	111	128	143
300	12	98	121	139	156

Horizontal & Vertical Supports

Horizontal & Vertical runs of Astral CPVC PRO Pipe should be supported by pipe clamps or by hangers located on the horizontal connection close to the Riser, Hangers should not have rough or sharp edges, which come in contact with the pipe.

SPACING									
Nominal Pipe Size		21°C (70°F)		49°C (120°F)		71°C (160°F)		82°C (180°F)	
mm	in.	Ft.	(cm)	Ft.	(cm)	Ft.	(cm)	Ft.	(cm)
15	½	5.5	(167.70)	4.5	(137.16)	3.0	(91.44)	2.5	(76.20)
20	¾	5.5	(167.70)	5.0	(152.40)	3.0	(91.44)	2.5	(76.20)
25	1	6.0	(182.88)	5.5	(167.70)	3.5	(106.68)	3.5	(91.44)
32	1¼	6.5	(198.12)	6.0	(182.88)	3.5	(106.68)	3.5	(106.68)
40	1½	7.0	(213.36)	6.0	(182.88)	3.5	(106.68)	3.5	(106.68)
50	2	7.0	(213.36)	6.5	(198.12)	4.0	(121.92)	3.5	(106.68)
65	2½	8.0	(244.00)	7.5	(228.60)	4.5	(137.16)	4.0	(121.92)
80	3	8.0	(244.00)	7.5	(228.60)	4.5	(137.16)	4.0	(121.92)
100	4	9.0	(274.32)	8.5	(259.08)	5.0	(152.40)	4.5	(137.16)
150	6	10.0	(304.80)	9.0	(274.32)	5.5	(167.07)	5.0	(152.40)
200	8	11.0	(335.28)	10.0	(304.80)	6.0	(182.88)	5.5	(167.07)
250	10	11.5	(350.52)	10.5	(320.04)	6.5	(198.12)	6.0	(182.88)
300	12	12.5	(381.00)	11.0	(335.28)	7.5	(228.60)	6.5	(198.12)

Note: Above values are typical values. It should be used as a general recommendation. Do not consider as a specification.



Underground Installation

TRENCHING

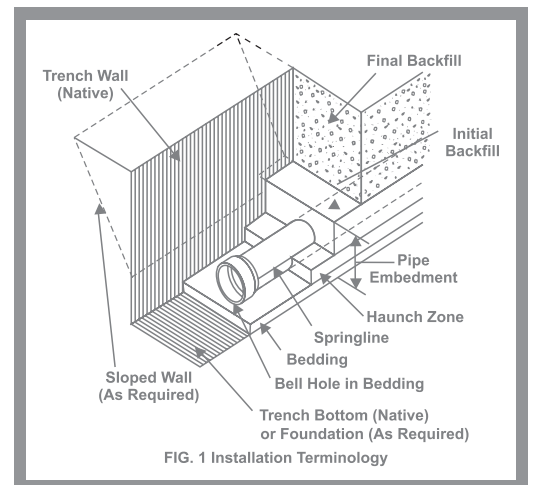
The following trenching and burial procedures should be used to protect the piping system.

1. The trench should be excavated to ensure the sides will be stable under all working conditions.
2. The trench should be wide enough to provide adequate room for the following :
 - A. Joining the pipe in the trench.
 - B. Snaking the pipe from side or side to compensate for expansion and contraction.
 - C. Filling and compacting the side fills. The space between the pipe and trench wall must be wider than the compaction equipment used in the compaction of the back fill. Minimum width shall not be less than the greater of either the pipe outside diameter plus 16 inches or the pipe outside diameter times 1.25 plus 12 inches. Trench width may be different if approved by the design engineer.
3. The trench bottom should be smooth, free of rocks and debris, continuous and provide uniform support. If ledge rock, hardpan or large boulders are encountered, the trench bottom should be padded with bedding of compacted granular material to a thickness of at least 4 inches. Foundation bedding should be installed as required by the engineer.
4. Trench depth is determined by the pipe's service requirements. Plastic pipe should always be installed at least below the frost level. The minimum cover for lines subject to heavy overhead traffic is 24 inches.
5. A smooth trench bottom is necessary to support the pipe over its entire length on firm stable material. Blocking should not be used to change pipe grade or to intermittently support pipe over low sections in the trench.

CPVC pipes and fittings can be installed underground. Since these piping systems are flexible systems, proper attention should be given to burial conditions. The stiffness of the piping system is affected by sidewall support, soil compaction, and the condition of the trench. Trench bottoms should be smooth and regular in either undisturbed soil or a layer of compacted backfill. Pipe must lie evenly on this surface throughout the entire length of its barrel. Excavation, bedding and backfill should be in accordance with the provision of the local Plumbing Code having jurisdiction.

BEDDING AND BACKFILLING

1. Even though sub-soil conditions vary widely from place to place, the pipe backfill should be stable and provide protection for the pipe.
2. The pipe should be surrounded with a granular material which is easily worked around the sides of the pipe. Backfilling should be performed in layer of 6 inch with each layer being sufficiently compacted to 85% to 95% compaction.
3. A mechanical tamper is recommended for compacting sand and gravel backfill which contain a significant proportion of fine grained material, such as silt and clay. If a tamper is not available, compacting should be done by hand.
4. The trench should be completely filled. The backfill should be placed and spread in fairly uniform layers to prevent any unfilled spaces or voids.



Requirement of Thermally Insulated CPVC Pipe

CPVC has much lower thermal conductivity than metals used in piping systems (0.14W / mk for CPVC versus > 400 W / mk for copper).

For this reason in most cases it is not necessary to thermally insulate CPVC piping. However the equation below can be used to calculate the approximate heat loss from CPVC pipes 1 meter length of pipe.

$$Q = \frac{\lambda}{e} \pi \left[\frac{d_i + d_o}{2} \right] \cdot \Delta T$$

Where Q = Heat loss per meter of pipe, W/m
 λ = Thermal conductivity. [W/mk] for CPVC,
 $\lambda = 0.14$ w/mk
 e = Thickness of pipe, mm
 $\pi = 3.1416$
 d_i = Inside diameter, mm
 d_o = Outside diameter, mm
 ΔT = Temperature differential between inner and outer surface of pipe.
 This can be approximated to: T water.
 T ambient (K)

EXAMPLE

What is the heat loss/meter from a 20mm outside diameter CPVC pipe. wall thickness 2,3mm, with water flowing inside at 80°C and an ambient air temperature of 25°C?

$$Q = \frac{0.14}{2.3} \cdot 3.1416 \cdot \left[\frac{15.4 + 20}{2} \right] \cdot (80 - 25)$$

= 186 W/m

$$Q = K \Delta T$$

Equation (1) can be simplified for standard pipe dimensions to:

Where K is a conductivity of CPVC and the pipe geometry in the previous example. $d_o = 20$ mm, and $e = 2.3$ mm

$$Q = \frac{0.14}{2.3} \cdot 3.1416 \cdot \left[\frac{15.4 + 20}{2} \right] \cdot = 3.38 \text{ (W/m)}$$

HANDLING

The pipe should be handled with reasonable care because thermoplastic pipe is much lighter in weight than metal pipe, there is sometimes a tendency to throw it around. This should be avoided.

The pipe should never be dragged or pushed from a truck bed. Pallets for pipe should be removed with a fork lift. Loose pipe can be rolled down timbers as long as the pieces do not fall on each other or on any hard or uneven surface. In all cases, severe contact with any sharp objects (rocks, angle irons, forks on forklifts, etc.) should be avoided.

STORAGE

If possible, pipe should be stored inside. When this is not possible, the pipe should be stored on level ground which is dry and free from sharp objects. If different schedules of pipes are stacked together, the pipes with the thickest walls should be at the bottom.

The pipes should be protected from the sun and be in an area with proper ventilation. This will lessen the effects of ultraviolet rays and help prevent heat built-up.

If the pipes are stored in racks, it should be continuously supported along its length. If this is not possible, the spacing of the supports should not exceed three feet (3').

When storage temperatures are below 0°C (32°F), extra care should be taken when handling the pipe. This will help prevent any problems which could be caused by the slightly lower impact strength of PVC pipes at temperature below freezing.



RAIN GUT DRAIN GUT



CPVC Pro Pipe

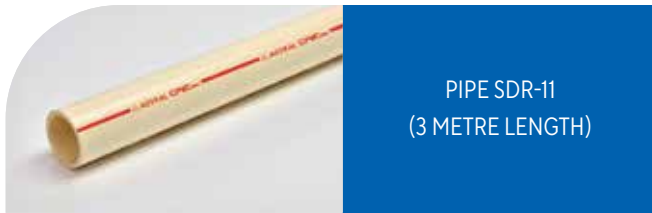
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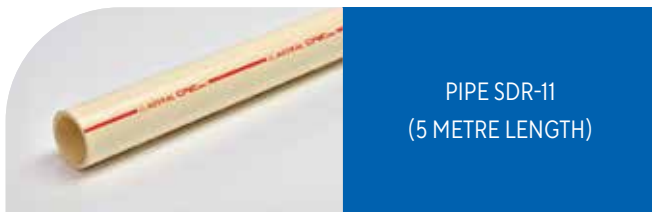
PIPE SDR-11
(3 METRE LENGTH)

Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
1.5	½	M511110301 [*]	100
2.0	¾	M511110302 [*]	50
2.5	1	M511110303 [*]	30
3.2	1¼	M511110304 [*]	20
4.0	1½	M511110305 [*]	15
5.0	2	M511110306 [*]	08



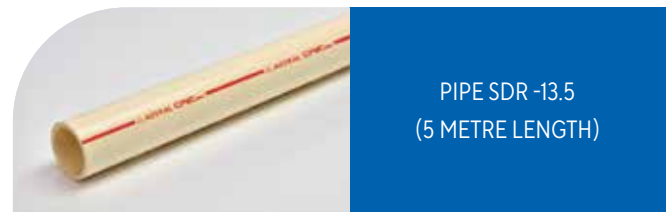
PIPE SDR -13.5
(3 METRE LENGTH)

Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
1.5	½	M511130301 [*]	100
2.0	¾	M511130302 [*]	50
2.5	1	M511130303 [*]	30
3.2	1¼	M511130304 [*]	20
4.0	1½	M511130305 [*]	15
5.0	2	M511130306 [*]	08



PIPE SDR-11
(5 METRE LENGTH)

Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
1.5	½	M511110501 [*]	60
2.0	¾	M511110502 [*]	40
2.5	1	M511110503 [*]	25
3.2	1¼	M511110504 [*]	15
4.0	1½	M511110505 [*]	10
5.0	2	M511110506 [*]	06



PIPE SDR -13.5
(5 METRE LENGTH)

Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
1.5	½	M511130501 [*]	60
2.0	¾	M511130502 [*]	40
2.5	1	M511130503 [*]	25
3.2	1¼	M511130504 [*]	15
4.0	1½	M511130505 [*]	10
5.0	2	M511130506 [*]	06

^{*} Manufactured as per IS Standard

CPVC Pro Pipe IPS - as per ASTM F441



PIPE SCHEDULE 40
(3 METRE LENGTH)

Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
6.5	2½	M511400307	05
8.0	3	M511400308	03
10.0	4	M511400309	02
15.0	6	M511400310	01



PIPE SCHEDULE 80
(3 METRE LENGTH)

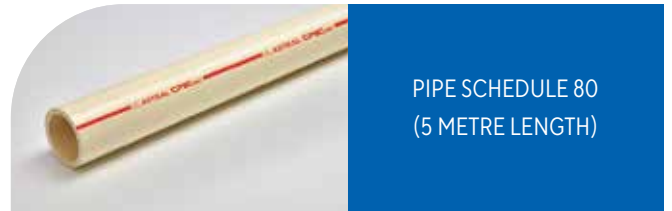
Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
6.5	2½	M511800307	05
8.0	3	M511800308	03
10.0	4	M511800309	02
15.0	6	M511800310	01
20.0	8	M511800311	01

10" and 12" pipe sizes are available on request



PIPE SCHEDULE 40
(5 METRE LENGTH)

Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
6.5	2½	M511400507	05
8.0	3	M511400508	03
10.0	4	M511400509	02
15.0	6	M511400510	01



PIPE SCHEDULE 80
(5 METRE LENGTH)

Size (cm)	Size (inch)	Product Code	Std. Pkg. (Nos.)
6.5	2½	M511800507	05
8.0	3	M511800508	03
10.0	4	M511800509	02
15.0	6	M511800510	01
20.0	8	M511800511	01

10" and 12" pipe sizes are available on request

CPVC Pro Fittings

CTS - as per ASTM D2846



ASTRAL
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COUPLER

Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
1.5	½	M512111001*	29.5	20.84	13.23	16.08	100	1500
2.0	¾	M512111002*	38.6	28	18	22.45	100	600
2.5	1	M512111003*	49.5	35	23.4	28.83	50	600
3.2	1¼	M512111004*	59.1	41.6	28	35.2	10	300
4.0	1½	M512111005*	69	49.3	33.1	41.66	10	200
5.0	2	M512111006*	90	64.2	43.2	54.38	10	50



ELBOW 45°-SOC

Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
1.5	½	M512112301*	38.88	31.09	13.4	16.08	100	500
2.0	¾	M512112302*	51	40.76	18.8	22.45	100	200
2.5	1	M512112303*	66.33	51.94	24	28.83	50	250
3.2	1¼	M512112304*	78	62.12	29.1	35.2	10	60
4.0	1½	M512112305*	91.93	73.18	33.6	41.66	10	40
5.0	2	M512112306*	118.89	64.38	43.56	54.38	05	15



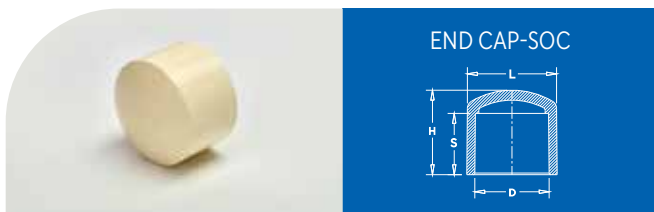
ELBOW 90°-SOC

Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
1.5	½	M512110501*	33.9	33.9	13.2	16.08	100	1000
2.0	¾	M512110502*	45.58	45.58	18.4	22.45	50	800
2.5	1	M512110503*	57.4	57.4	23.5	28.83	50	400
3.2	1¼	M512110504*	58.59	58.59	28.7	35.2	10	200
4.0	1½	M512110505*	80.77	80.77	33.7	41.66	10	120
5.0	2	M512110506*	104.85	104.85	43.6	54.38	05	50



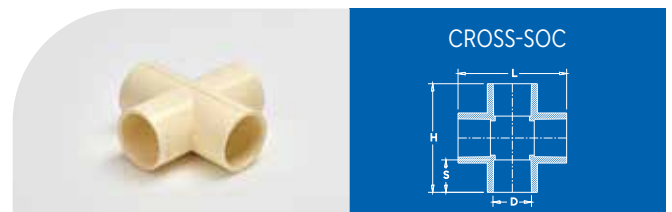
TEE-SOC

Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
1.5	½	M512110101*	38.88	31.09	13.4	16.08	100	800
2.0	¾	M512110102*	51	40.76	18.8	22.45	50	500
2.5	1	M512110103*	66.33	51.94	24	28.83	25	300
3.2	1¼	M512110104*	78	62.12	29.1	35.2	10	150
4.0	1½	M512110105*	91.93	73.18	33.6	41.66	10	90
5.0	2	M512110106*	118.89	64.38	43.56	54.38	05	40



END CAP-SOC

Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
1.5	½	M512114101*	33.9	33.9	13.2	16.08	100	1000
2.0	¾	M512114102*	45.58	45.58	18.4	22.45	100	500
2.5	1	M512114103*	57.4	57.4	23.5	28.83	100	200
3.2	1¼	M512114104*	58.59	58.59	28.7	35.2	10	120
4.0	1½	M512114105*	80.77	80.77	33.7	41.66	10	100
5.0	2	M512114106*	104.85	104.85	43.6	54.38	10	40



CROSS-SOC

Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
1.5	½	M512112401*	45.6	45.6	13.6	16.08	100	200
2.0	¾	M512112402*	62	62	18.5	22.45	25	100
2.5	1	M512112403*	79	79	23.36	28.83	25	100
3.2	1¼	M512112404	96.5	96.5	28.4	35.2	10	60
4.0	1½	M512112405	112.48	112.48	33.5	41.66	05	40
5.0	2	M512112406	144.85	144.85	43.9	54.38	15	15

* Manufactured as per IS Standard

CPVC Pro Fittings

CTS - as per ASTM D2846



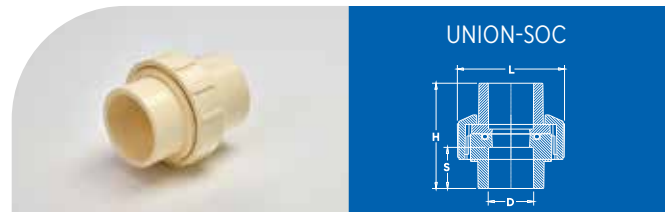
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
1.5	½	M512111301	31.9	24.5	14.2	16.08	1/2	100	600
2.0	¾	M512111302	41.75	31.2	18.75	22.45	3/4	100	600
2.5	1	M512111303	47.6	38.8	23.84	28.83	1	50	300
3.2	1¼	M512111304	54.9	47.7	28.47	35.2	1-1/4	10	200
4.0	1½	M512111305	62.2	56.6	33.5	41.66	1-1/2	10	100
5.0	2	M512111306	74.8	73.7	43.5	54.38	2	10	50



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
2.0x1.5	¾ x ½	M512111614	37.5	31.0	18.0	22.45	1/2	50	600



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
2.0x1.5	¾ x ½	M512111314	42	30.9	18.3	22.45	1/2	100	500
2.5x2.0	1 x ¾	M512111316	46	38.8	23.84	28.83	3/4	50	450



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
1.5	½	M512112601	36.3	38.5	15.2	16.08	1/2	30	210
2.0	¾	M512112602	52.1	53	20.4	22.45	3/4	20	180
2.5	1	M512112603	56.8	65	23.8	28.83	1	15	120
3.2	1¼	M512112604	63.44	66.2	28.1	35.2	1-1/4	10	90
4.0	1½	M512112605	76.4	75	33.3	41.66	1-1/2	10	60
5.0	2	M512112606	96.12	87.58	43.3	54.38	2	05	30



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
1.5	½	M512111601	34.8	30.2	13.2	16.08	1/2	100	800
2.0	¾	M512111602	42	36.5	18.1	22.45	3/4	50	500
2.5	1	M512111603	49.1	44.6	23.3	28.83	1	50	250
3.2	1¼	M512111604	56.3	55	29.2	35.2	1-1/4	10	150
4.0	1½	M512111605	64.2	62.5	33.5	41.66	1-1/2	10	100
5.0	2	M512111606	75.5	78.4	43.3	54.38	2	05	50



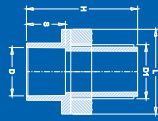
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
1.5	½	M512112501	36.3	38.5	15.2	16.08	1/2	10	80
2.0	¾	M512112502	52.1	53	20.4	22.45	3/4	10	60
2.5	1	M512112503	56.8	65	23.8	28.83	1	10	40
3.2	1¼	M512112504	63.44	66.2	28.1	35.2	1-1/4	10	30
4.0	1½	M512112505	76.4	75	33.3	41.66	1-1/2	10	20
5.0	2	M512112506	96.12	87.58	43.3	54.38	2	05	15



Only those products bearing the above marks are certified



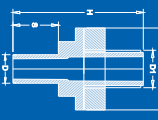
TANK ADAPTOR (SOCKET TYPE) (THDXSOC)



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
2.0	¾	M5128010202	64.5	54.5	25.6	26.87	3/4	25	75
2.5	1	M5128010203	72	50.7	28.8	33.66	1	20	60
3.2	1¼	M5128010204	79.35	64	32.5	42.42	1-1/4	10	70
4.0	1½	M5128010205	87.7	70.52	35.7	48.56	1-1/2	10	60
5.0	2	M5128010206	92	82.4	39	60.63	2	05	35



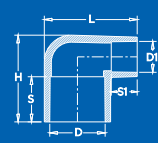
TANK ADAPTOR (SPIGOT TYPE) (THDXSPG)



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
1.5	½	M512806501	90	45	40	21.34	1/2	25	200
2.0	¾	M512806502	105	50	50	26.67	3/4	20	140
2.5	1	M512806503	127	55	60	33.4	1	20	80
3.2	1¼	M512806504	167	65	75	42.16	1-1/4	10	40
4.0	1½	M512806505	170	70	75	48.26	1-1/2	05	30
5.0	2	M512806506	175	82	80	60.32	2	05	20



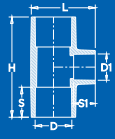
REDUCER ELBOW 90°-SOC



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.)	
									Std.	Mast.
2.0x1.5	¾ x ½	M512110614*	39.54	40.8	18.5	22.45	13.5	16.08	100	500
2.5x1.5	1 x ½	M512110615*	45.14	48.35	23.5	28.83	13.5	16.08	50	350
2.5x2.0	1 x ¾	M512110616*	51.38	53.35	23.5	28.83	18.5	22.45	50	300
3.2x1.5	1¼ x ½	A512110617	68.5	71.8	28.5	35.2	13.2	16.08	-	01
3.2x2.0	1¼ x ¾	M512110618*	61.6	58	28.13	35.2	18	22.45	25	175
3.2x2.5	1¼ x 1	M512110619*	61.6	63.95	28.13	35.2	23	28.83	25	150
5.0x2.5	2 x 1	A512110626	104.9	108.25	43.6	54.38	23.2	28.83	-	01



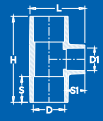
REDUCER TEE -SOC



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.)	
									Std.	Mast.
1.5x1.5x2.0	½ x ½ x ¾	A512110291	69	44.9	13	16.08	18.4	22.45	-	01
2.0x1.5x2.0	¾ x ½ x ¾	A512110292	65.8	44.9	18.40/13	22.45	18.4	22.45	-	01
2.0x1.5x1.5	¾ x ½ x ½	A512110293	65.8	48.1	18.40/13	22.45	13	16.08	-	01
2.0x2.0x1.5	¾ x ¾ x ½	M512110214*	61.5	39.25	18.4	22.45	13.3	16.08	50	300
2.5 x 2.5x1.5	1 x 1 x ½	M512110215*	67.5	47.1	23.6	28.83	13.3	16.08	25	300
2.5x2.5x2.0	1 x 1 x ¾	M512110216*	78.75	51.36	23.8	28.83	18.5	22.45	25	75
3.2x3.2x1.5	1¼ x 1¼ x ½	M512110217*	76.26	53.65	28.47	34.85	13.2	16.08	10	100
3.2x3.2x2.0	1¼ x 1¼ x ¾	M512110218*	82.6	58.08	28.2	34.85	18.2	22.45	10	120
3.2x3.2x2.5	1¼ x 1¼ x 1	M512110219*	88.9	63.3	28.3	34.85	23.52	28.83	10	80
4.0x4.0x1.5	1½ x 1½ x ½	M512110220*	105.74	59.81	33.48	41.2	13.9	16.08	10	70
4.0x4.0x2.0	1½ x 1½ x ¾	M512110221*	106	65.56	33.2	41.2	18.5	22.45	10	60
4.0x4.0x2.5	1½ x 1½ x 1	M512110222*	99.12	68.7	33.36	41.2	23.31	28.83	10	30
4.0x4.0x3.2	1½ x 1½ x 1¼	M512110223*	105.72	76	33.49	41.2	28	35.2	10	60
5.0x5.0x1.5	2 x 2 x ½	M512110224*	106.5	75	43.47	54.38	13.55	16.08	05	30
5.0x5.0x2.0	2 x 2 x ¾	M512110225*	133.6	78	43.95	54.38	18.45	22.45	05	35
5.0x5.0x2.5	2 x 2 x 1	M512110226*	119	82	43.4	54.38	23.28	28.83	05	15
5.0x5.0x3.2	2 x 2 x 1¼	M512110227*	133.45	89	44.1	54.38	28	35.2	05	30
5.0x5.0x4.0	2 x 2 x 1½	M512110228*	133	93.25	43.2	54.38	33.18	41.66	05	25



REDUCER TEE - SOC (IPS X CTS)



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (mm)	Pkg.(Nos.)	
								Std.	Mast.
6.5x2.5	2½ x 1	A5121110031*	166	139	45.7	73.38	28.83	-	01
6.5x4.0	2½ x 1½	M5121110033	174	119	48.6	73.38	41.66	-	15
6.5x5.0	2½ x 2	M5121110034	174	124	48.6	73.38	54.38	-	12
8.0x2.5	3 x 1	A5121110037*	195	161	48.4	89.31	28.83	-	01
8.0x4.0	3 x 1½	M5121110039	196	137.5	50	89.31	41.66	-	10
8.0x5.0	3 x 2	M5121110040	196	140.5	50	89.31	54.38	-	10
10.0x4.0	4 x 1½	M5121110046	240	162.3	58	114.76	41.66	-	05
10.0x5.0	4 x 2	M5121110047	240	165.32	58	114.76	54.38	-	05
15.0x5.0	6 x 2	A5121110055*	350	285	78.2	168.83	54.38	-	01

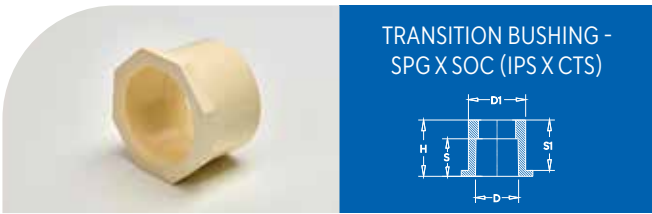
* Reducer fittings are professionally assembled using Astral fittings and bushings. Quantity as per order.
 Note: Fabricated reducer fittings are not eligible for return to the manufacturer. SOC - SOCKET, SPG - SPIGOT, THD - THREADED
 All the items where product code starts with "A" are assembled items, "> Manufactured as per IS Standard.

CPVC Pro Fittings

CTS - as per ASTM D2846



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	SI (mm)	D1 (mm)	Pkg.(Nos.)	
									Std.	Mast.
2.0x1.5	¾ x ½	M512111914*	21.5	26.7	13	16.08	18.3	22.2	100	1000
2.5x1.5	1 x ½	M512111915*	26.6	34.5	13.1	16.08	23.3	28.6	100	600
2.5x2.0	1 x ¾	M512111916*	26.6	34.5	18.6	22.45	23.3	28.6	100	800
3.2x1.5	1¼ x ½	M512111917*	31.5	41.8	13.2	16.08	28.2	34.9	10	300
3.2x2.0	1¼ x ¾	M512111918*	31.5	41.8	18	22.45	28.2	34.9	10	300
3.2x2.5	1¼ x 1	M512111919*	31.5	41.8	23.2	28.83	28.2	34.9	10	300
4.0x1.5	1½ x ½	M512111920*	36.4	49.5	13.1	16.08	33.1	41.3	10	200
4.0x2.0	1½ x ¾	M512111921*	36.4	49.5	18	22.45	33.1	41.3	10	200
4.0x2.5	1½ x 1	M512111922*	36.4	49.5	23	28.83	33.1	41.3	10	200
4.0x3.2	1½ x 1¼	M512111923*	36.4	49.5	28.2	35.2	33.1	41.3	10	200
5.0x1.5	2 x ½	M512111924*	46.8	64.6	13.2	16.08	43.5	54	10	100
5.0x2.0	2 x ¾	M512111925*	46.8	64.6	18.2	22.45	43.5	54	10	150
5.0x2.5	2 x 1	M512111926*	46.8	64.6	23.2	28.83	43.5	54	10	100
5.0x3.2	2 x 1¼	M512111927*	46.8	64.6	28.3	35.2	43.5	54	10	100
5.0x4.0	2 x 1½	M512111928*	46.8	64.6	33.5	41.66	43.5	54	10	100



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	SI (mm)	D1 (mm)	Pkg.(Nos.)	
									Std.	Mast.
6.5x2.5	2½ x 1	A512112131*	58	79.3	23.2	28.83	45	73	01	01
6.5x4.0	2½ x 1½	M512112133	54	79.3	34	41.66	45	73	05	60
6.5x5.0	2½ x 2	M512112134	54	79.3	43.7	54.38	45	73	05	25
8.0x4.0	3 x 1½	M512112139	57	95.3	34	41.66	48	89	05	40
8.0x5.0	3 x 2	M512112140	57	95.3	43.7	54.38	48	89	05	20
10.0x4.0	4 x 1½	M512112146	67	120.78	34	41.66	58	114.3	01	10
10.0x5.0	4 X 2	M512112147	67	120.78	43.7	54.38	58	114.3	01	10



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	SI (mm)	D1 (mm)	Pkg.(Nos.)	
									Std.	Mast.
1.5 x 1.5	½ x ½	M512112101	21	26.74	14	16.08	18.8	21.34	100	1500
2.0 x 2.0	¾ x ¾	M512112102	21.8	32.3	18	22.45	18.6	26.67	100	1000
2.5 x 2.5	1 x 1	M512112103	55	40.6	23.7	28.83	29	33.4	50	200
3.2 x 3.2	1¼ x 1¼	M512112104	56	48	29	35.2	24	42.16	25	150
4.0 x 4.0	1½ x 1½	M512112105	73	56.8	34	41.66	36.5	48.26	10	80
5.0 x 5.0	2 x 2	M512112106	86.5	68.5	44	54.38	40	60.32	10	50



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	SI (mm)	D1 (mm)	Pkg.(Nos.)	
									Std.	Mast.
2.0 x 1.5	¾ x ½	M512111114*	33.6	27.8	18.2	22.45	13.1	16.08	100	1000
2.5 x 1.5	1 x ½	M512111115*	40.8	34.3	24	28.83	13	16.08	100	500
2.5 x 2.0	1 x ¾	M512111116*	45	34.8	23.4	28.83	18	22.45	50	450
3.2 x 1.5	1¼ x ½	M512111117*	43.3	41.5	28.1	35.2	13.1	16.08	50	300
3.2 x 2.0	1¼ x ¾	M512111118*	49.5	41.7	28.2	35.2	18.2	22.45	50	300
3.2 x 2.5	1¼ x 1	M512111119*	55	41.7	28.87	35.2	23	28.83	50	200
4.0 x 1.5	1½ x ½	M512111120*	50.5	49.62	33.52	41.66	14.4	16.08	25	75
4.0 x 2.0	1½ x ¾	M512111121*	55	48.98	33.7	41.66	18	22.45	25	75
4.0 x 2.5	1½ x 1	M512111122*	60	48.98	33.7	41.66	23	28.83	25	75
4.0 x 3.2	1½ x 1¼	M512111123*	65.3	48.98	33.87	41.66	28	35.2	25	50
5.0 x 1.5	2 x ½	M512111124*	60	63.97	43.7	54.38	13	16.08	10	40
5.0 x 2.0	2 x ¾	M512111125*	64.58	64.23	43.4	54.38	18.18	22.45	10	90
5.0 x 2.5	2 x 1	M512111126*	70.5	64.16	43.7	54.38	23	28.83	10	30
5.0 x 3.2	2 x 1¼	M512111127*	75	64.58	43.85	54.38	28.4	35.2	10	30
5.0 x 4.0	2 x 1½	M512111128*	77.8	64.32	43.2	54.38	33.14	41.66	10	70

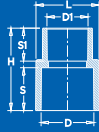
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 All the items where product code starts with "A" are assembled items, ^ Manufactured as per IS Standard.



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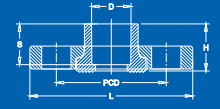
TRANSITION REDUCER
COUPLER-SOC (IPS X CTS)



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.)	
									Std.	Mast.
6.5 x 4.0	2½ x 1¾	M5121110333	97.1	87.9	45.8	73.38	34	41.66	01	40
6.5 x 5.0	2½ x 2	M5121110334	101.1	87.7	45	73.38	44	54.38	01	40
8.0 x 4.0	3 x 1½	M5121110339	102.6	103.5	48.6	89.28	34.1	41.66	30	30
8.0 x 5.0	3 x 2	M5121110340	108.5	103.3	49	89.28	44.4	54.38	30	30
10.0 x 4.0	4 x 1½	M5121110346	121.4	130.1	58.5	114.73	35	41.66	16	16
10.0 x 5.0	4 x 2	M5121110347	125.7	130.3	58.7	114.73	45	54.38	16	16



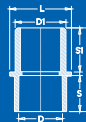
VANSTONE FLG-SOC



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
2.5	1	M512113403	27.4	107.61	23.78	28.83	10	60
3.2	1¼	M512113404	33.72	116.05	29.37	35.2	05	50
4.0	1½	M512113405	37.28	125.5	33.88	41.66	05	35
5.0	2	M512113406	47.3	151	42.85	54.38	05	25



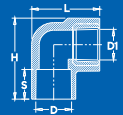
TRANSITION COUPLER
-SOC (IPS X CTS)



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.)	
									Std.	Mast.
2.5 x 2.5	1 x 1	M512112203	49.6	41	21.8	33.66	23.6	28.83	50	200



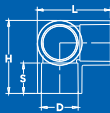
BRASS FPT - SOC
ELBOW 90°



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
1.5 x 1.5	½ x ½	M512110701	45.55	36.7	13.5	16.08	1/2	50	200
2.0 x 1.5	¾ x ½	M512110714	50.72	42.7	18.6	22.45	1/2	50	150
2.0 x 2.0	¾ x ¾	M512110702	54.2	42	18	22.45	3/4	25	100
2.5 x 1.5	1 x ½	M512110715	55.45	53.49	22.9	28.83	1/2	25	100
2.5 x 2.0	1 x ¾	M512110716	60.63	50.3	23.7	28.83	3/4	25	100
2.5 x 2.5	1 x 1	M512110703	61.1	56	23.3	28.83	1	25	50
3.2 x 1.5	1¼ x ½	M512110517	67.47	57.85	28.2	35.2	1/2	25	75
3.2 x 2.0	1¼ x ¾	M512110518	69.98	59.85	28.2	35.2	3/4	30	60
3.2 x 3.2	1¼ x 1¼	M512110704	76	65.3	28.4	35.2	1-1/4	10	30



ELBOW 90°
3-WAY - SOC



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
2.0	¾	M5121112402	44.4	44.4	18.5	22.45	50	300



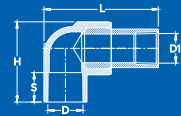
ELBOW 90°
4-WAY - SOC



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
2.0	¾	M5121112502	61.5	44.4	18.5	22.45	50	250



FEMALE EXT. BRASS
THD X SOC ELBOW 90°



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
2.0 x 1.5	¾ x ½	M512114723	51.2	73	18.8	22.45	1/2	25	100

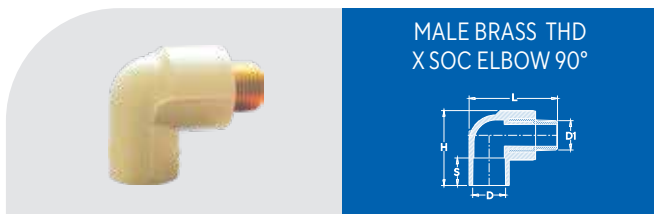
* Reducer fittings are professionally assembled using Astral fittings and bushings. Quantity as per order.
 Note: Fabricated reducer fittings are not eligible for return to the manufacturer. SOC - SOCKET
 All the items where product code starts with "A" are assembled items. # Shortly introducing, ^ Manufactured as per IS Standard.

CPVC Pro Fittings

CTS - as per ASTM D2846



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
2.0 x 1.5	¾ x ½	M5121114114	50	54	18.3	22.45	1/2	100	250



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
2.0 x 1.5	¾ x ½	M512114823	51.2	60.5	18.8	22.45	1/2	10	100



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
1.5x1.5x1.5	½ x ½ x ½	M512110301	51.66	38	13.7	16.08	1/2	50	200
2.0x2.0x1.5	¾ x ¾ x ½	M512110314	68.32	43	18	22.45	1/2	25	100
2.0x2.0x2.0	¾ x ¾ x ¾	M512110302	61.9	47	18.6	22.45	3/4	25	100
2.5x2.5x1.5	1 x 1 x ½	M512110315	78.86	50.5	23.4	28.83	1/2	25	75
2.5x2.5x2.0	1 x 1 x ¾	M512110316	77.78	51	24.57	28.83	3/4	25	75
2.5x2.5x2.5	1 x 1 x 1	M512110303	78	57	24.57	28.83	1	10	50
3.2x3.2x3.2	1¼ x 1¼ x 1¼	M512110304	94.6	66.9	28.7	35.2	1-1/4	05	30
3.2x3.2x1.5	1¼ x 1¼ x ½	M512110317	94.7	64.8	28.7	35.2	1/2	10	40



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
2.0x2.0x1.5	¾ x ¾ x ½	M512114923	68	60.44	18.8	22.45	1/2	10	100
2.5x2.5x1.5	1 x 1 x ½	M512115024	68	67.43	23.4	28.83	1/2	01	75



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
1.5	½	M512111401	48.56	29.9	12.9	16.08	1/2	50	200
2.0	¾	M512111402	54	33.6	18	22.45	3/4	25	100
2.5	1	M512111403	71	41.8	24.8	28.83	1	10	50
3.2	1¼	M512111404	80.55	56.4	28.5	35.2	1-1/4	5	25
4.0	1½	M512111405	88.25	63.2	33.5	41.66	1-1/2	5	25
5.0	2	M512111406	102.25	69.7	43.7	54.38	2	5	15



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
2.0x1.5	¾ x ½	M512111514	52.6	30.1	18.5	22.45	1/2	25	150
2.5x1.5	1 x ½	M512111515	60.3	37.6	24.5	28.83	1/2	25	100
2.5x2.0	1 x ¾	M512111416	59.9	37.6	23.5	28.83	3/4	25	125



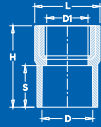
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
1.5	½	M512111701	43	30.4	13	16.08	1/2	50	200
2.0	¾	M512111702	50.2	35.5	18	22.45	3/4	25	100
2.5	1	M512111703	64.6	46	24.2	28.83	1	10	50
3.2	1¼	M512111704	78.5	57	28.5	35.2	1-1/4	5	25
4.0	1½	M512111705	84.4	63.2	33.5	41.66	1-1/2	5	25
5.0	2	M512111706	93.5	77.7	43.7	54.38	2	5	15



Only those products bearing the above marks are certified



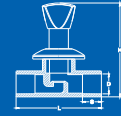
**REDUCER COUPLER
(BRASS THDXSOC)**



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
2.0x1.5	¾ x ½	M512111214	39	33.8	18	22.45	1/2	50	200
2.5x1.5	1 x ½	M512111215	44.4	36.96	23.8	28.83	1/2	25	100
2.5x2.0	1 x ¾	M512111216	46.2	37	23.6	28.83	3/4	25	125



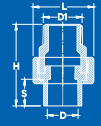
**CONCEALED VALVE
(CHROME PLATED) (TRIANGLE)**



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
1.5	½	M512118501	117.5	93.6	19.5	16.08	01	20
2.0	¾	M512118502	125	115	25.5	22.45	02	16
2.5	1	M512118503	136	130	30.5	28.83	02	14



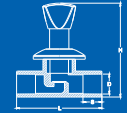
**MALE UNION
(BRASS THDXSOC)**



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
1.5	½	M512119801	48.5	33	14	160.8	1/2	25	200
2.0	¾	M512119802	63	43	18.1	22.45	3/4	10	100
2.5	1	M512119803	75	50.4	23.3	28.83	1	10	60
3.2	1¼	M512119804	85	64	29.3	35.2	1-1/4	5	35
4.0	1½	M512119805	91	72	34.1	41.66	1-1/2	5	25
5.0	2	M512119806	107	88	43.5	54.38	2	5	15



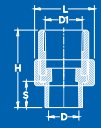
**CONCEALED VALVE
(CHROME PLATED) (SQUARE)**



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
1.5	½	M5121110401	117.5	93.6	19.5	16.08	2	20
2.0	¾	M5121110402	125	115	25.5	22.45	2	16
2.5	1	M5121110403	136	130	30.5	28.83	2	14



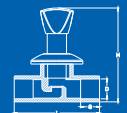
**FEMALE UNION
(BRASS THDXSOC)**



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
1.5	½	M512119901	48.5	33	14	160.8	1/2	25	200
2.0	¾	M512119902	63	43	18.1	22.45	3/4	10	110
2.5	1	M512119903	75	50.4	23.3	28.83	1	10	70
3.2	1¼	M512119904	85	64	29.3	35.2	1-1/4	5	35
4.0	1½	M512119905	91	72	34.1	41.66	1-1/2	5	25
5.0	2	M512119906	107	88	43.5	54.38	2	5	15



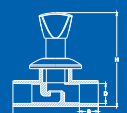
**CONCEALED VALVE
(CHROME PLATED) (ROUND)**



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
1.5	½	M5121110501	117.5	93.6	19.5	16.08	2	20
2.0	¾	M5121110502	125	115	25.5	22.45	2	16
2.5	1	M5121110503	136	130	30.5	28.83	2	14

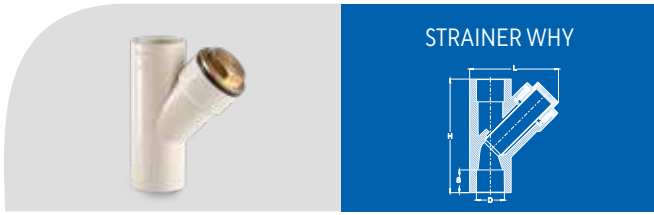


**CONCEALED VALVE
(CHROME PLATED) (FLOWER)**



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
1.5	½	M5121110601	117.5	93.6	19.5	16.08	02	20
2.0	¾	M5121110602	125	115	25.5	22.45	02	16
2.5	1	M5121110603	136	130	30.5	28.83	02	14

CPVC Pro Fittings Spares for Concealed Valve



STRAINER WHY

Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
2.5	1	M5121115403	117	91.5	29	35.66	10	30
3.2	1¼	M5121115404	148.4	123.5	32.3	42.42	5	10
4.0	1½	M5121115405	168	131.5	35.4	48.56	1	8
5.0	2	M5121115406	197	157.5	38.6	60.63	1	6



CONCEALED VALVE
SWEPT TYPE(CHROME PLATED)
(SQUARE)

Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
2.0(Long)	¾	M5121113302	155	81.8	19	22.45	01	20
2.5(Long)	1	M5121113303	155	88.6	23.7	28.83	01	20
2.0(SHORT)	¾	M5121113402	124	81.8	19	22.45	01	20
2.5(SHORT)	1	M5121113403	124	88.6	23.7	28.83	01	20



CONCEALED VALVE
(WHEEL TYPE)

Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
1.5	½	M512118601	103.5	93.6	19.5	16.08	02	20
2.0	¾	M512118602	108	115	25.5	22.45	02	16
2.5	1	M512118603#	-	-	-	-	02	14



CONCEALED VALVE
SWEPT TYPE(CHROME PLATED)
(FLOWER)

Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
2.0(Long)	¾	M5121113502	155	81.8	19	22.45	01	20
2.5(Long)	1	M5121113503	155	88.6	23.7	28.83	01	20
2.0(SHORT)	¾	M5121113602	124	81.8	19	22.45	01	20
2.5(SHORT)	1	M5121113603	124	88.6	23.7	28.83	01	20



CONCEALED VALVE
SWEPT TYPE(CHROME PLATED)
(TRIANGLE)

Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
2.0(Long)	¾	M5121113102	155	81.8	19	22.45	01	20
2.5(Long)	1	M5121113103	155	88.6	23.7	28.83	01	20
2.0(SHORT)	¾	M5121113202	124	81.8	19	22.45	01	20
2.5(SHORT)	1	M5121113203	124	88.6	23.7	28.83	01	20



CONCEALED VALVE
SWEPT TYPE(CHROME PLATED)
(ROUND)

Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
2.0(Long)	¾	M5121113702	155	81.8	19	22.45	01	20
2.5(Long)	1	M5121113703	155	88.6	23.7	28.83	01	20
2.0(SHORT)	¾	M5121113802	124	81.8	19	22.45	01	20
2.5(SHORT)	1	M5121113803	124	88.6	23.7	28.83	01	20



FANCY HANDLE
(KNOB) WITH RED & BLUE
PLASTIC BUTTON
(TRIANGLE)

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.)	
			Std.	Mast.
2.0	¾	RM04159009	-	01



S.S. FLANGE
WITH RUBBER GROMET

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.)	
			Std.	Mast.
2.0	¾	RM04159004	-	01



FANCY HANDLE
(KNOB) WITH RED & BLUE
PLASTIC BUTTON
(SQUARE)

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.)	
			Std.	Mast.
2.0	¾	RM04159006	-	01



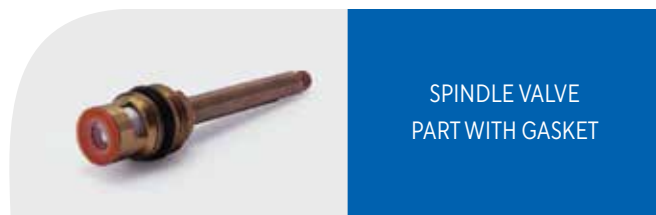
BRASS PIPE (C.P)

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.)	
			Std.	Mast.
2.0 (Long)	¾	RM04159005#	-	01
2.0 (short)	¾	RM04159015#	-	01



FANCY HANDLE
(KNOB) WITH RED & BLUE
PLASTIC BUTTON
(ROUND)

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.)	
			Std.	Mast.
2.0	¾	RM04159007	-	01



SPINDLE VALVE
PART WITH GASKET

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.)	
			Std.	Mast.
2.0 (Short)	¾	RM04159010	-	01
2.0 (Long)	¾	RM04159011	-	01
2.5 (Short)	1	RM04159012	-	01
2.5 (Long)	1	RM04159013	-	01



FANCY HANDLE
(KNOB) WITH RED & BLUE
PLASTIC BUTTON
(FLOWER)

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.)	
			Std.	Mast.
2.0	¾	RM04159008	-	01

CPVC Pro Fittings

CTS - as per ASTM D2846



SPINDLE VALVE
PART WITH GASKET

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.)	
			Std.	Mast.
1.5	½	RM04159001	-	01
2.0	¾	RM04159002	-	01
2.5	1	RM04159003	-	01



CONCEALED
CHROME PLATED VALVE

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.)	
			Std.	Mast.
1.5	½	RM04151012	-	02
2.0	¾	RM04151034	-	02
2.5	1	RM04151001	-	02

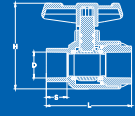


WHEEL
TYPE VALVE

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.)	
			Std.	Mast.
1.5	½	RM04152012	-	01
2.0	¾	RM04152034	-	01
2.5	1	RM04152001#	-	01



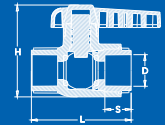
BALL VALVES
(CTS SOCKETS)



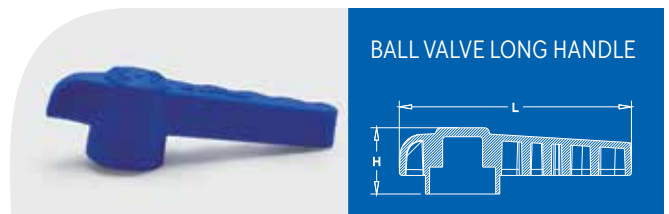
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
1.5	½	M512112701N	68.1	62.5	14.7	16.08	-	80
2.0	¾	M512112702N	81.5	79.7	18	22.45	-	100
2.5	1	M512112703N	96.2	91.5	24.9	28.83	-	60
3.2	1¼	M512112704N	111.71	106.4	29.5	35.2	-	40
4.0	1½	M512112705N	135.5	128.5	34.5	41.66	-	25
5.0	2	M512112706N	159.8	162.8	43.1	54.38	-	14



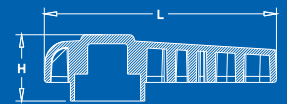
BALL VALVE LONG
HANDLE (CTS SOCKET)



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
1.5	½	M512112701LH	64	69	18	16.08	-	80
2.0	¾	M512112702LH	77.5	79.7	23.3	22.45	-	100
2.5	1	M512112703LH	99	90.8	24	28.83	-	50
3.2	1¼	M512112704LH	112	99.8	28.2	35.2	-	40
4.0	1½	M512112705LH	124.8	119.7	28	41.66	-	30
5.0	2	M512112706LH	154.5	133.3	29.5	54.38	-	15



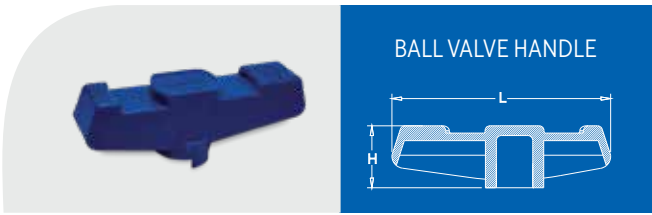
BALL VALVE LONG HANDLE



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	Pkg.(Nos.)	
					Std.	Mast.
1.5	½	M512118001	21.5	74	-	01
2.0	¾	M512118002	27	83.8	-	01
2.5	1	M512118003	30.8	108.4	-	01
3.2	1¼	M512118004	35	115	-	01
4.0	1½	M512118005	37.5	129.4	-	01
5.0	2	M512118006	47	159.6	-	01



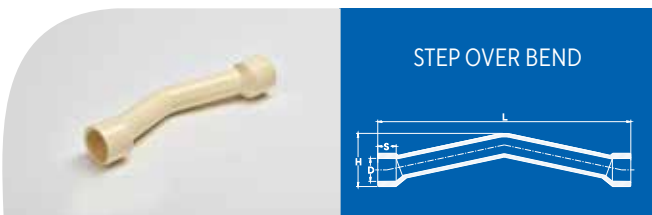
Only those products bearing the above marks are certified



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	Pkg.(Nos.)	
					Std.	Mast.
1.5	½	M512118001N	22.6	62.3	-	01
2.0	¾	M512118002N	27.5	78	-	01
2.5	1	M512118003N	29.5	89	-	01
3.2	1¼	M512118004N	36.3	103.7	-	01
4.0	1½	M512118005N	44.6	119.6	-	01
5.0	2	M512118006N	49.5	148	-	01



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
2.0	¾	M512110902	106	106	20.6	22.45	10	140
2.5	1	M512110903	123.8	123.8	23.4	28.83	10	80
3.2	1¼	M512110904	135	135	29.4	35.2	10	50
4.0	1½	M512110905	156.2	156.2	35.2	41.66	05	30
5.0	2	*F512110906	188	188	45	54.38	-	14



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
1.5	½	M512112801	39.8	150	20.8	16.08	10	150
2.0	¾	M512112802	50	189.5	18	22.45	10	200
2.5	1	M512112803	57.75	200	23	28.83	10	150
3.2	1¼	M512112804	75	360	27	35.2	-	30
4.0	1½	M512112805	80	380	32	41.66	-	20
5.0	2	F512112806	115	530	48	54.38	-	10



Size (cm)	DN (inch)	Product Code	H (mm)	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
									Std.	Mast.
2.0 x 1.5	¾ x ½	M512510614	146.5	171.7	179	18.6	22.45	1/2	-	06
2.5 x 1.5	1 x ½	M512510615	146.5	171.7	179	24	28.83	1/2	-	06



Size (cm)	DN (inch)	Product Code	H (mm)	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
									Std.	Mast.
2.0 x 1.5	¾ x ½	M512510714	146.5	171.7	179	18.6	22.45	1/2	-	06
2.5 x 1.5	1 x ½	M512510715	146.5	171.7	179	24	28.83	1/2	-	06



Size (cm)	DN (inch)	Product Code	H (mm)	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
									Std.	Mast.
2.0 x 1.5	¾ x ½	M512510814	146.5	171.7	179	18.6	22.45	1/2	-	06
2.5 x 1.5	1 x ½	M512510815	146.5	171.7	179	24	28.83	1/2	-	06



Size (cm)	DN (inch)	Product Code	H (mm)	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
									Std.	Mast.
2.0 x 1.5	¾ x ½	M512510914	146.5	171.7	179	18.6	22.45	1/2	-	06
2.5 x 1.5	1 x ½	M512510915	146.5	171.7	179	24	28.83	1/2	-	06

All the items where product code starts with "F" are fabricated items.

CPVC Pro Fittings

CTS - as per ASTM D2846



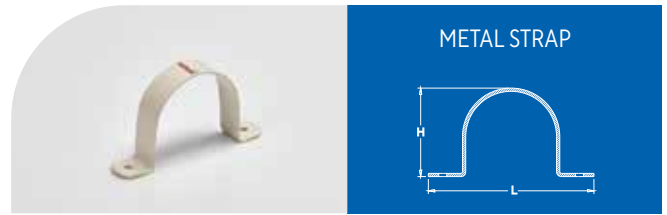
Size (cm)	DN (inch)	Product Code	H (mm)	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
									Std.	Mast.
2.0 x 1.5	¾ x ½	M512511014	146.5	171.7	179	18.6	22.45	1/2	-	06
2.5 x 1.5	1 x ½	M512511015	146.5	171.7	179	24	28.83	1/2	-	06



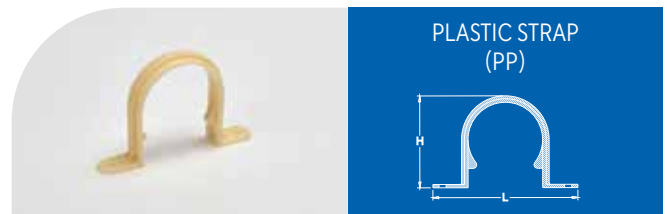
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	Pkg.(Nos.)	
					Std.	Mast.
2.5	1	T143-010M	27	26.7	-	96
4.0	1½	T143-015M	40	26.7	-	64
5.0	2	T143-020M	53	26.7	-	48
6.5	2½	T143-025M	67	26.7	-	40
8.0	3	T143-030M	77	26.7	-	32
10.0	4	T143-040M	99	25.5	-	24
12.5	5	T143-050M	122.8	25.5	-	20
15.0	6	T143-060M	147.5	25.5	-	16



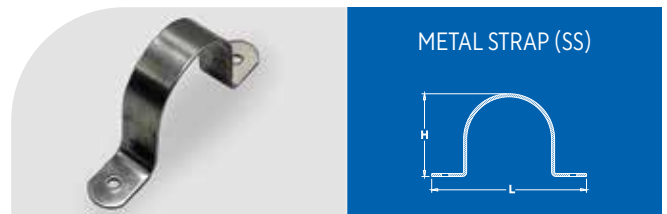
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	Pkg.(Nos.)	
					Std.	Mast.
2.5	1	T143-010H	25.5	25.5	-	96
4.0	1½	T143-015H	38.4	25.5	-	64
5.0	2	T143-020H	49.5	25.5	-	48
6.5	2½	T143-025H	62.2	25.5	-	40
8.0	3	T143-030H	73.5	25.5	-	32
10.0	4	T143-040H	99	25.5	-	24
12.5	5	T143-050H	123.8	25.5	-	20
15.0	6	T143-060H	148	25.5	-	16



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	Pkg.(Nos.)	
					Std.	Mast.
1.5	½	T9120M	17.8	59.5	-	900
2.0	¾	T9340M	23.5	66.5	-	600
2.5	1	T9100M	30	72	-	500
3.2	1¼	T9105M	36.5	78.5	-	400
4.0	1½	T9106M	43	86.5	-	300
5.0	2	T9200M	55.3	103.5	-	250



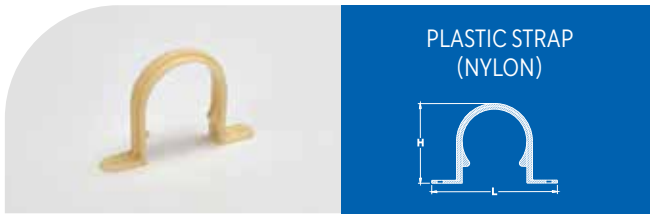
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	Pkg.(Nos.)	
					Std.	Mast.
1.5	½	M214006001	45	22	-	1500
2.0	¾	M214006002	46	28	-	2400
2.5	1	M214006003	56	34.7	-	1600
3.2	1¼	M214006004	79.5	42	-	900
4.0	1½	M214006005	89	50.5	-	600
5.0	2	M214006006	101	64	-	400



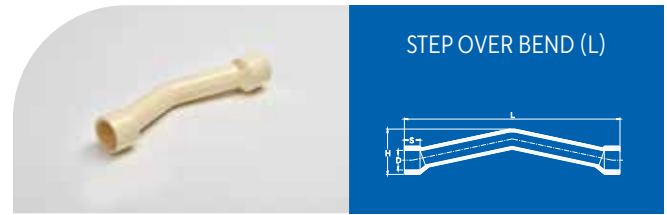
Size (cm)	Size (inch)	Product Code	Pkg.(Nos.)	
			Std.	Mast.
1.5	½	T9120MSS	150	1500
2.0	¾	T9340MSS	180	1800
2.5	1	T9100MSS	150	1500
3.2	1¼	T9105MSS	100	1000
4.0	1½	T9106MSS	80	800
5.0	2	T9200MSS	50	500



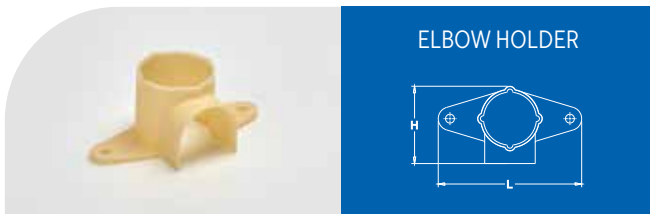
Only those products bearing the above marks are certified



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	Pkg.(Nos.)	
					Std.	Mast.
1.5	½	M214006101	45	22	-	1500
2.0	¾	M214006102	46	28	-	2400
2.5	1	M214006103	56	34.7	-	1600
3.2	1¼	M214006104	79.5	42	-	900
4.0	1½	M214006105	89	50.5	-	600
5.0	2	M214006106	101	64	-	400



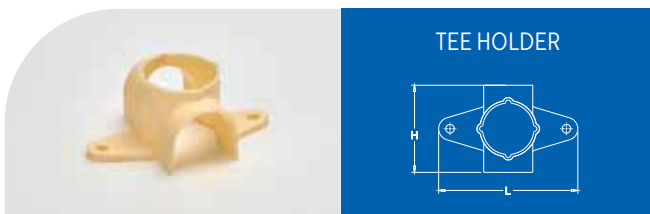
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
2.0	¾	M512112802L	51	245	18.3	22.45	10	160
2.5	1	M512112803L	66	320	23	28.83	10	80



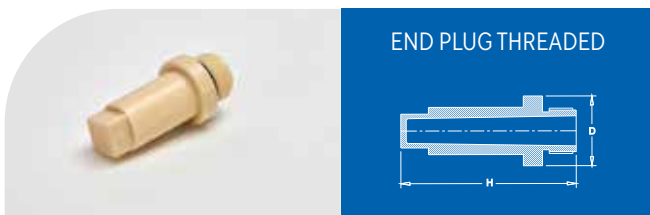
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	Pkg.(Nos.)	
					Std.	Mast.
1.5 x 1.5	½ x ½	M214006701	59.5	78.1	-	500
2.0 x 1.5	¾ x ½	M214006714	47.5	88.5	-	400



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
2.0	¾	M512110902SL	80	80	18	22.45	15	225
2.5	1	M512110903SL	103	103	23.38	28.83	15	120
3.2	1¼	M512110904SL	120	120	28.3	35.2	10	70



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	Pkg.(Nos.)	
					Std.	Mast.
1.5 x 1.5	½ x ½	M214006801	-	-	-	500
2.0 x 1.5	¾ x ½	M214006814	55.54	88.5	-	400



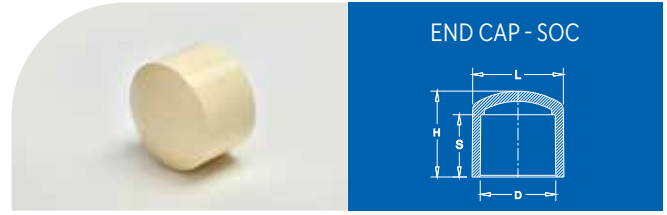
Size (cm)	DN (inch)	Product Code	H (mm)	D (mm)	Pkg.(Nos.)	
					Std.	Mast.
1.5	¾ x ½	M214002901	78	31	-	300
2.0	1 x ½	M214002902	80	36	-	200

CPVC Pro Fittings

SCH - 40 Fittings as per ASTM F438



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
6.5	2½	M512401007	106	84.3	50.5	73.38	05	20
8.0	3	M512401008	101	102.48	47.7	89.31	05	15
10.0	4	M512401009	108	127.5	51.5	114.76	-	08



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
6.5	2½	M512404107	61.5	83.5	45.1	73.38	05	10
8.0	3	M512404108	68.1	100.8	48.5	89.31	05	10
10.0	4	M512404109	78	127.5	52.3	114.76	-	10



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.)	
									Std.	Mast.
6.5 x 2.5	2½ x 1	A512401931	62.12	79.18	40.46	33.5	44.7	73.4	-	01
6.5 x 3.2	2½ x 1¼	M512401932	54.7	80.1	31.5	42.42	44.8	73.38	05	25
6.5 x 4.0	2½ x 1½	M512401933	54.8	79	33	48.56	45.2	73.38	05	25
6.5 x 5.0	2½ x 2	M512401934	54.2	79	35.5	60.63	44.7	73.38	05	25
8.0 x 2.5	3 x 1	A512401937	75.56	95.14	28.8	33.5	48	89.31	-	01
8.0 x 4.0	3 x 1½	M512401939	56.8	94.3	32.9	48.56	48	89.31	05	20
8.0 x 5.0	3 x 2	M512401940	58.2	95.3	37	60.63	48	89.31	05	20
8.0 x 6.5	3 x 2½	M512401941	57.3	95.3	45	73.38	48	89.31	05	20
10.0 x 5.0	4 x 2	M512401947	65	121.7	36.6	60.63	56.7	114.76	05	10
10.0 x 6.5	4 x 2½	M512401948	64.7	118.2	44.8	73.38	56.7	114.76	05	10
10.0 x 8.0	4 x 3	M512401949	665.1	118.2	52	89.31	56.7	114.76	05	10



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
6.5	2½	F512400907	340	340	45.8	73.38	-	06
8.0	3	F512400908	420	420	59.03	89.31	-	05
10.0	4	F512400909	450	450	71	114.76	-	04



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.)	
									Std.	Mast.
8.0x6.5	3 X 2½	M512400241	174.65	142.4	48.5	88.9	45.5	73.1	10	10
10.0x6.5	4 X 2½	M512400248	195.7	168	51.9	114.8	45.5	73.1	06	06
10.0x8.0	4 X 3	M512400249	195.7	175	51.9	114.8	49.17	88.5	06	06



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
6.5	2½	M512400507	125.3	125.3	44.9	73.38	05	15
8.0	3	M512400508	144.68	144.68	48	89.31	-	10
10.0	4	M512400509	174	174	51.2	114.76	-	06



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
6.5	2½	M512400107	166	125.45	45.7	73.38	-	12
8.0	3	M512400108	195	148	48.4	89.31	-	08
10.0	4	M512400109	224	175	51.5	114.76	-	04

Note: Fabricated reducer fittings are not eligible for return to the manufacturer. SOC-SOCKET, SPG - SPIGOT. All the items where product code starts with "A" are assembled items.

CPVC Pro Fittings

SCH 80 Fittings as per ASTM F439



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
6.5	2½	M512801007	101.5	88.7	48.4	73.38	05	20
8.0	3	M512801008	102.4	106.8	48.6	89.31	05	15
10.0	4	M512801009	122.3	134.4	58.4	114.76	-	12
15.0	6	M512801010	106.2	191.3	76.9	168.83	-	02
20.0	8	M512801011	210.4	246	101.7	219.84	-	01
25.0	10	M512801012	260.35	304	127	273.81	-	01
30.0	12	M512801013#	314.4	359.5	152.4	324.61	-	01



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
6.5	2½	M512800107	175.5	131.5	46.7	73.38	05	12
8.0	3	M512800108	197	151	50.3	89.31	-	07
10.0	4	M512800109	256	195	58.5	114.76	-	04
15.0	6	M512800110	350	271	78.2	168.83	-	02
20.0	8	M512800111#	431	339.5	103	219.84	-	01

Sizes above 6" will be in Grey colour

* Reducer fittings are professionally assembled using Astral fittings and bushings. Quantity as per order.

Note: Fabricated reducer fittings are not eligible for return to the manufacturer. SOC - SOCKET

All the items where product code starts with "A" are assembled items.

All the items where product code starts with "F" are fabricated items.



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
6.5	2½	M512800507	130.75	130.75	46.78	73.38	05	15
8.0	3	M512800508	150.55	150.55	50	89.31	-	10
10.0	4	M512800509	195	195	58.33	114.76	-	05
15.0	6	M512800510	260.7	260.7	77	168.83	-	02
20.0	8	M512800511	338.5	338.5	102	219.84	-	01



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
6.5	2½	M512801407	111.5	110	47.4	73.38	2½	-	09
8.0	3	M512801408	114.2	116	50.5	89.31	3	-	08
10.0	4	M512801409	140	147	58.5	114.76	4	-	04



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
6.5	2½	M512802307	143.5	121.07	44.45	73.38	05	20
8.0	3	M512802308	163	142.2	49.83	89.31	-	12
10.0	4	M512802309	188	172	57.2	114.76	-	06
15.0	6	M512802310	273	249.48	77	168.83	-	02
20.0	8	M512802311	362.6	324.8	102.3	219.84	-	01



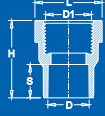
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
6.5	2½	M512801607	80.6	101.4	45	73.38	2½	05	30
8.0	3	M512801608	86.3	119.6	48.23	89.31	3	05	20
10.0	4	M512801609	101.6	152.6	57.3	114.76	4	-	12



Only those products bearing the above marks are certified



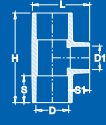
FEMALE ADAPTOR
(BRASS THD X SOC)



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
6.5	2½	M512801707	87.4	109	46.8	73.38	2½	-	09
8.0	3	M512801708	90	140	50.5	89.31	3	-	07
10.0	4	M512801709	106	164.9	58.5	114.76	4	-	06



REDUCER TEE - SOC



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.)	
									Std.	Mast.
6.5x2.5	2½ x 1	M512800231	174.3	112.5	48.2	73.38	30.9	33.66	-	15
6.5x3.2	2½ x 1¼	M512800232	174	116.7	48.2	73.38	34.4	42.42	-	15
6.5x4.0	2½ x 1½	M512800233	174	119	48.6	73.38	37.3	48.56	-	15
6.5x5.0	2½ x 2	M512800234	174	124	48.6	73.38	39	60.63	-	12
8.0x2.5	3 x 1	M512800237	155	134.8	49	89.3	30	33.66	-	12
8.0x3.2	3 x 1¼	M512800238	155	137.8	49	89.3	33	42.42	-	12
8.0x4.0	3 x 1½	M512800239	196	137.5	50	89.3	37.2	48.56	-	10
8.0x5.0	3 x 2	M512800240	196	140.5	50	89.3	40.3	60.63	-	09
8.0x6.5	3 x 2½	M512800241	196	147	50	89.3	47.2	73.38	-	09
10.0x2.5	4 X 1	M512800244	240	155.8	58	114.76	30.5	33.66	-	05
10.0x3.2	4 X 1¼	M512800245	240	158.3	58	114.76	33	42.42	-	05
10.0x4.0	4 X 1½	M512800246	240	162.3	58	114.76	37	48.56	-	05
10.0x5.0	4 X 2	M512800247	240	165.3	58	114.76	40	60.63	-	05
10.0x6.5	4 X 2½	M512800248	240	171.3	58	114.76	46	73.38	-	05
10.0x8.0	4 X 3	M512800249	240	174.8	58	114.76	49.5	89.31	-	05
15.0x5.0	6 x 2	M512800255	235	232.5	77	168.83	39	60.63	-	02
15.0x6.5	6 x 2½	M512800256	235	237.5	77	168.83	45.5	73.38	-	02
15.0x8.0	6 x 3	M512800257	350	244	78.2	168.83	49.5	89.31	-	02
15.0x10.0	6 x 4	M512800258	350	253	78.2	168.83	58.5	114.76	-	02
20.0x10.0	8 x 4	M512800267	380	295	103	219.84	58.2	114.76	-	01
20.0x15.0	8 x 6	M512800268	431	349	103	219.84	76.4	168.83	-	01



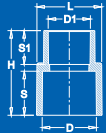
TANK ADAPTOR (LONG)
THD X SPG



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
6.5	2½	*F512806507	355	73.02	115	73.02	2½	-	15
8.0	3	*F512806508	355	88.9	115	88.9	3	-	09
10.0	4	*F512806509	305	114.2	138	114.7	4	-	08



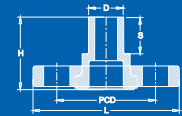
REDUCER COUPLER - SOC



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.)	
									Std.	Mast.
6.5 x 3.2	2½ x 1¼	M512801132	94.4	88.9	45.6	73.38	35	42.42	08	48
6.5 x 4.0	2½ x 1½	M512801133	102.5	88.2	46.9	73.38	37	48.56	05	40
6.5 x 5.0	2½ x 2	M512801134	92.5	87.54	45	73.38	38.2	60.63	05	40
8.0 x 3.2	3 x 1¼	M512801138	101	105.5	48.5	89.31	32.5	42.42	-	30
8.0 x 4.0	3 x 1½	M512801139	110	105.68	48.5	89.31	36.45	48.56	-	27
8.0 x 5.0	3 x 2	M512801140	104	104.9	48.8	89.31	38.3	60.63	05	25
8.0 x 6.5	3 x 2½	M512801141	106	104.76	48.7	89.31	44.7	73.38	05	25
10.0 x 4.0	4 x 1½	M512801146	140	134.5	57.68	114.76	36.68	48.56	-	16
10.0 x 5.0	4 x 2	M512801147	140	134.5	57.5	114.76	38.3	60.63	-	16
10.0 x 6.5	4 x 2½	M512801148	128.5	132	59.2	114.76	44.8	73.38	-	15
10.0 x 8.0	4 x 3	M512801149	123	132	58	114.76	47.8	89.31	-	15
15.0 x 5.0	6 x 2	M512801155	160	192	77	168.83	39	60.63	-	04
15.0 x 6.5	6 x 2½	M512801156	163	192	77	168.83	45.5	73.38	-	04
15.0 x 8.0	6 x 3	M512801157	166.5	192	77	168.83	48.5	89.31	-	04
15.0 x 10.0	6 x 4	M512801158	168.5	192	77	168.83	58	114.76	-	04
20.0 x 10.0	8 x 4	M5128 01167	215	245	102.7	219.2	58	114.17	02	02
20.0 x 15.0	8 x 6	M512801168	204.5	246.2	103.5	219.84	77	168.83	-	02



VANSTONE FLANGE SPG



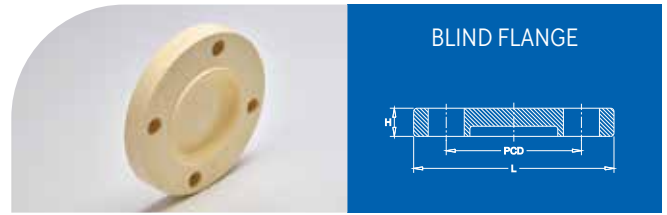
Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	PCD (mm)	Pkg.(Nos.)	
								Std.	Mast.
6.5	2½	M512803307	50	177.8	45.4	73.2	139	-	12
8.0	3	M512803308	52.8	189.9	50.6	88.09	152.4	-	10
10.0	4	M512803309	65	229.6	57.5	114.3	190.4	-	06

CPVC Pro Fittings

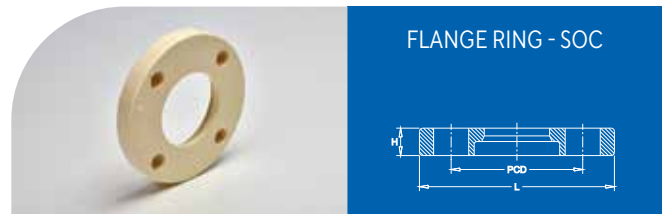
SCH - 80 Fittings as per ASTM F439



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	S1 (mm)	D1 (mm)	Pkg.(Nos.)	
									Std.	Mast.
6.5x3.2	2½ x 1¼	M512801932	54.8	80	31.5	42.42	45.2	73.02	05	50
6.5x4.0	2½ x 1½	M512801933	54.8	80	35.3	48.56	45.2	73.02	05	50
6.5x5.0	2½ x 2	M512801934	49.8	74	38.3	60.63	45.2	73.02	05	50
8.0x3.2	3 x 1¼	M512801938	57	95.3	32	42.42	48	88.9	-	-
8.0x4.0	3 x 1½	M512801939	58	95.5	35	48.56	48.2	88.9	05	35
8.0x5.0	3 x 2	M512801940	58	95.5	39	60.63	48.2	88.9	05	35
8.0x6.5	3 x 2½	M512801941	58	95.5	52.5	73.38	48.2	88.9	05	35
10.0x4.0	4 x 1½	M512801946	67.8	121.5	36	48.56	58.3	114.3	20	20
10.0x5.0	4 x 2	M512801947	68	121.5	38.5	60.63	58.5	114.3	05	20
10.0x6.5	4 x 2½	M512801948	67.8	121.5	45	73.38	58.3	114.3	05	10
10.0x8.0	4 x 3	M512801949	68	121.5	48	89.3	58.5	114.3	05	20
15.0x8.0	6 x 3	M512801957	85	177.5	48.5	89.3	76.2	168.28	-	06
15.0x10.0	6 x 4	M512801958	82.1	177.55	59	114.76	76.2	168.28	-	06
20.0x10.0	8 x 4	M512801967	111	229	58	114.76	102	219.08	-	03
20.0x15.0	8 x 6	M512801968	111	229	76.4	168.83	102	219.08	-	03



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	PCD (mm)	Pkg.(Nos.)	
						Std.	Mast.
8.0	3	M512803108	23.50	189.90	152.40	-	20
10.0	4	M512803109	29.50	228.60	190.40	-	12



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	PCD (mm)	Pkg.(Nos.)	
						Std.	Mast.
6.5	2½	M512804207	24.6	177.8	139	-	01
8.0	3	M512804208	26.3	189.9	152.4	-	01
10.0	4	M512804209	29.2	229.6	190.4	-	01
15.0	6	M512804210	31.7	279	244	-	01
20.0	8	M512804211	34	343	302.5	-	01



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	PCD (mm)	Pkg.(Nos.)	
								Std.	Mast.
6.5	2½	M512803407	50	177.8	44.45	73.38	139	-	15
8.0	3	M512803408	52.8	189.9	49	89.31	152.4	-	12
10.0	4	M512803409	65	229.6	57.72	114.76	190.4	-	08
15.0	6	M512803410	85	279	77.5	168.83	244	-	03
20.0	8	M512803411	111.8	343	102.2	219.84	302.5	-	01



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
6.5	2½	M512803607	50	104.5	44.45	73.38	-	01
8.0	3	M512803608	52.8	117.9	49	89.31	-	01
10.0	4	M512803609	65	150.9	57.72	114.76	-	01
15.0	6	M512803610	85	207.5	77.5	168.83	-	01
20.0	8	M512803611	111.8	260.7	102.2	219.84	-	01



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
6.5	2½	M512804107	67.8	87.97	47.1	73.38	-	55
8.0	3	M512804108	74	104.89	49	89.31	-	39
10.0	4	M512804109	90.35	132.5	57.5	114.76	-	18
15.0	6	M512804110	124.5	192.23	77.5	168.83	-	06



Size (cm)	DN (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	PCD (mm)	Pkg.(Nos.)	
								Std.	Mast.
8.0	3	M512803208	55.00	189.90	51.5	89.31	152.40	-	12
10.0	4	M512803209	65.00	228.60	57.7	114.76	190.40	-	08

All the items where product code starts with "A" are assembled items. SOC - SOCKET, SPG - SPIGOT # Shortly introducing

CPVC Pro Fittings

SCH - 80 Fittings as per ASTM F439



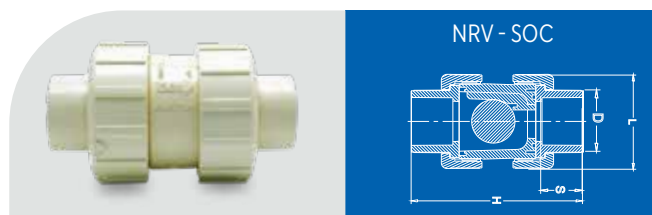
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
6.5	2½	F512800907Ω	360	360	45.7	73.38	-	06
8.0	3	F512800908Ω	405	405	60	89.31	-	05
10.0	4	F512800909Ω	450	450	71	114.76	-	04



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	D1 (inch)	Pkg.(Nos.)	
								Std.	Mast.
6.5	2½	M512801307	89.5	89.6	45.2	73.38	2-1/2	05	30
8.0	3	M512801308	107.1	95.4	48.2	89.31	3	05	20
10.0	4	M512801309	102	151.8	57.25	114.76	4	-	15



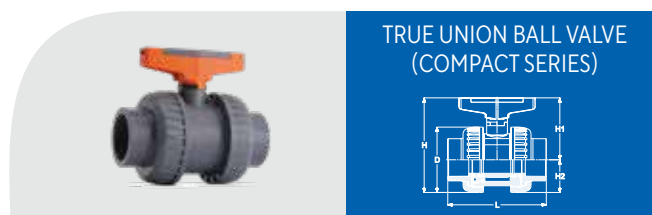
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
6.5	2½	M512803707	50	104.3	45.4	73.2	-	01
8.0	3	M512803708	52.8	118.5	50.6	88.09	-	01
10.0	4	M512803709	65	149.7	56.5	114.3	-	01



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
2.0	¾	M5128013902	109	55.6	26.2	26.87	01	60
2.5	1	M5128013903	120.8	66.1	29.1	33.66	01	40



Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	S (mm)	D (mm)	Pkg.(Nos.)	
							Std.	Mast.
6.5	2½	M512802607	102.3	130.3	44.8	73.38	-	15
8.0	3	M512802608	109.2	156	47.7	89.31	-	10
10.0	4	M512802609	130	196.6	57.7	114.76	-	04



Size (cm)	DN (inch)	Product Code	L (mm)	D (mm)	H (mm)	H1 (mm)	H2 (mm)	Pkg.(Nos.)	
								Std.	Mast.
1.5	½	M537151701	104	53	83	57	26	-	33
2	¾	M537151702	114	61	97	66	31	-	20
2.5	1	M537151703	129	70	108	73	35	-	18
3.2	1¼	M537151704	141	84	125	83	42	-	10
4	1½	M537151705	161	101	146	95	51	-	6
5	2	M537151706	181	120	173	113	60	-	4



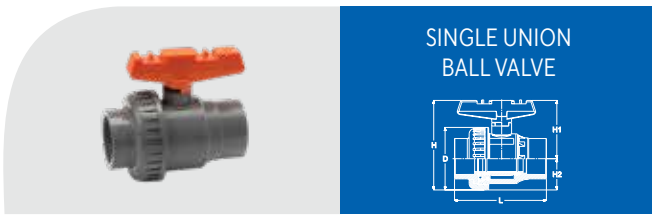
Size (cm)	Size (inch)	Product Code	H (mm)	L (mm)	D (inch)	Pkg.(Nos.)	
						Std.	Mast.
2.0	¾	M5128012702	44.6	27.6	3/4"	100	600
2.5	1	M5128012703	50.4	34.3	1"	50	350



Size (cm)	DN (inch)	Product Code	L (mm)	D (mm)	H (mm)	H1 (mm)	H2 (mm)	Pkg.(Nos.)	
								Std.	Mast.
6.5	2½	M517150307	229	152	237	160	77	-	1
8	3	M517150308	257	170	267	177	90	-	1
10	4	M517150309	314	208	318	211	107	-	1



Only those products bearing the above marks are certified



Size (cm)	DN (inch)	Product Code	D (mm)	H (mm)	H1 (mm)	H2 (mm)	L (mm)	Pkg.(Nos.)	
								Std.	Mast.
1.5	½	M537150201	53	76	50	26	91	-	33
2	¾	M537150202	61	90	59	31	103	-	20
2.5	1	M537150203	70	105	70	35	115	-	18
3.2	1¼	M537150204	84	122	80	42	130	-	10
4	1½	M537150205	101	149	98	51	149	-	6
5	2	M537150206	120	173	113	60	176	-	4
6.5	2½	M537150207	152	214	138	76	291	-	1
8	3	M537150208	170	240	155	85	243	-	1
10	4	M537150209	208	294	190	104	297	-	1



Size (cm)	Size (inch)	Product Code	Pkg.(Nos.)	
			Std.	Mast.
6.5	2½	4522-025C ^o	-	01
8.0	3	4522-030C ^o	-	01
10.0	4	4522-040C ^o	-	01
15.0	6	4522-060C ^o	-	01
20.0	8	4522-080C ^o	-	01



Size (cm)	DN (inch)	Product Code	D (mm)	H (mm)	H1 (mm)	H2 (mm)	L (mm)	Pkg.(Nos.)	
								Std.	Mast.
1.5	½	M537150301	53	99	71	28	118	-	20
2	¾	M537150302	61	113	81	32	130	-	18
2.5	1	M537150303	71	127	90	37	147	-	10
3.2	1¼	M537150304	84	149	105	44	165	-	6
4	1½	M537150305	101	175	122	53	181	-	4
5	2	M537150306	120	204	142	62	207	-	3
6.5	2½	M537150307	152	237	160	77	229	-	1
8	3	M537150308	170	267	177	90	257	-	1
10	4	M537150309	208	318	211	107	314	-	1



Size (cm)	Size (inch)	Product Code	Pkg.(Nos.)	
			Std.	Mast.
6.5	2½	722311-025C ^o	-	01
8.0	3	722311-030C ^o	-	01
10.0	4	722311-040C ^o	-	01
15.0	6	722311-060C ^o	-	01
20.0	8	722311-080C ^o	-	01



Size (cm)	Size (inch)	Product Code	Pkg.(Nos.)	
			Std.	Mast.
15.0	6	1822-060C ^o	-	01
20.0	8	1822-080C ^o	-	01



Size (cm)	Size (inch)	Product Code	Pkg.(Nos.)	
			Std.	Mast.
6.5	2½	753311-025C ^o	-	01
8.0	3	753311-030C ^o	-	01
10.0	4	753311-040C ^o	-	01
15.0	6	753311-060C ^o	-	01
20.0	8	753311-080C ^o	-	01

^o Trading Item available in Grey colour only.
Note: SOC-SOCKET

CPVC Pro Solvent Cements & Primer



IPS WELD-ON
500 CTS ADHESIVE SOLUTION
(YELLOW)

SUITABLE FOR (1/2"-2")
SDR 11 & SDR 13.5

Qty. (ml)	Product Code	Pkg.(Nos.)	
		Std.	Mast.
50	M001001015	-	48
118	M001001020	-	24
237	M001001025	-	24
473	M001001030	-	12
946	M001001035	-	12

For sizes 65 mm and above use cpvc 724 adhesive solution



PIPEFIX
CPVC 307

Qty. (ml)	Product Code	Pkg.(Nos.)	
		Std.	Mast.
50	M003605005	-	48
118	M003605010	-	24
237	M003605015	-	24
473	M003605020	-	12
946	M003605025	-	12



CPVC 724
(2 1/2"-12")
SCH40 & SCH80

Qty. (ml)	Product Code	Pkg.(Nos.)	
		Std.	Mast.
473	M008301005	-	12
946	M008301010	-	12

N.B. For sizes 65 mm (2 1/2") and above



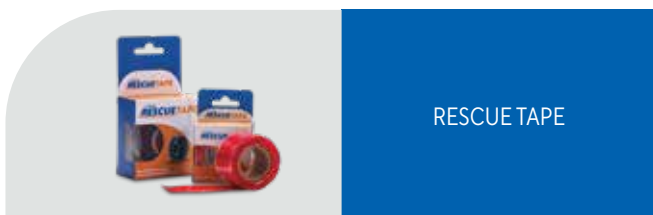
IPS WELD-ON
PRIMER P 70

(2 1/2"-12")
SCH40 & SCH80

Qty. (ml)	Product Code	Pkg.(Nos.)	
		Std.	Mast.
473	M008401005	-	12
946	M008401010	-	12

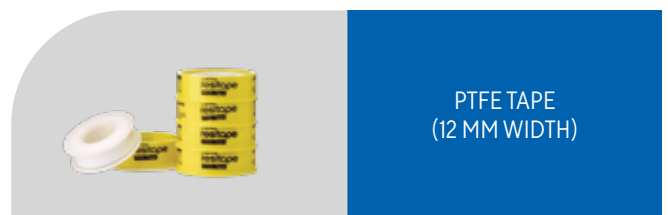
N.B. Must use primer for 65 mm (2 1/2") & above

Ancillary Products



RESCUE TAPE

Size (ft.)	Product Code	Pkg.(Nos.)	
		Std.	Mast.
5	M005601010	-	120
5	M005601015	-	120
5	M005601005	-	120
10	M005601025	-	120
10	M005601030	-	120
10	M005601020	-	120
15	M005601040	-	120
15	M005601045	-	120
15	M005601035	-	120



PTFE TAPE
(12 MM WIDTH)

Size (m)	Product Code	Pkg.(Nos.)	
		Std.	Mast.
4	M003302004	-	01
8	M003302007	-	01
8	M003302017	-	01



BONDSET
FAST SETTING

Qty. (gm)	Product Code	Pkg.(Nos.)	
		Std.	Mast.
50	M000702051	-	01
100	M000702050	-	01



RATCHET
CUTTER

Size (cm)	Size (inch)	Product Code	Pkg.(Nos.)	
			Std.	Mast.
1.5 - 3.2	½ - 1¼	TTOOLS-1ø	-	01



Installation Procedure



1. CUTTING

In order to make a proper and neat joint, measure the pipe length accurately and make a small mark. Ensure that the pipe and fittings are size compatible. You can easily cut with a wheel type plastic pipe cutter or hacksaw blade. Cutting tubing as squarely as possible provides optimal bonding area within a joint.



2. DEBURRING/ BEVELING

Burrs and filings can prevent proper contact between tube and fitting during assembly and should be removed from the outside and inside of the pipe. Debarking tool, pocket knife or file are suitable for this. A slight bevel on the end of the tubing will ease entry of the tubing into the fitting socket.



3. FITTING PREPARATION

Using a clean, dry rag, wipe dirt and moisture from the fitting sockets and tubing end. The tubing should make contact with the socket wall 1/3 to 2/3 of the way into the fitting socket.

4. SOLVENT CEMENT APPLICATION

Use only CPVC cement or an all - purpose cement conforming to ASTM F-493 or joint failure may result. When making a joint, apply a heavy, even coat of cement to the pipe end. Use the same applicator without additional cement to apply a thin coat inside the fitting socket. Too much cement can cause clogged water ways.



5. ASSEMBLY

Immediately insert the tubing into the fitting socket, rotate the tube $\frac{1}{4}$ to $\frac{1}{2}$ turn while inserting. This motion ensures an even distribution of cement within the joint. Properly align the fittings. Hold the assembly for approximately 10 seconds, allowing the joint to set-up.



6. SET AND CURE

Solvent cement set and cure times are a function of pipe size, temperature and relative humidity. Curing time is shorter for drier environments, smaller sizes and higher temperatures. It requires 10 to 20 minutes for perfect joint.

Note: For sizes above 65 mm (2½") use IPS 70 primer before applying solvent cement. The purpose of a primer is to penetrate and soften the surfaces so they can stick together. The proper use of a primer ensures that the surfaces are prepared for fusion in a wide variety of weather conditions.



How To Use Solvent Cement Primer & Cleaner

JOINT CURING

Recommended initial set times

Temperature Range	Pipe Size ½" to 1 ¼" (15 mm to 32 mm)	Pipe Size 1½" to 3" (40 mm to 80 mm)	Pipe Size 4" to 8" (100 mm to 200 mm)	Pipe Size 10" to 12" (250 mm to 300 mm)
15.5°C - 37.7°C	15 min.	30 min.	1 hrs.	2 hrs.
4.4°C - 15.5°C	1 hrs.	2 hrs.	4 hrs.	8 hrs.

Recommended initial cure times

Temperature Range	Pipe Size ½" to 1 ¼" (15 mm to 32 mm)	Pipe Size 1½" to 3" (40 mm to 80 mm)	Pipe Size 4" to 8" (100 mm to 200 mm)	Pipe Size 10" to 12" (250 mm to 300 mm)
15.5°C - 37.7°C	6 hrs.	12 hrs.	24 hrs.	48 hrs.
4.4°C - 15.5°C	12 hrs.	24 hrs.	48 hrs.	96 hrs.

CHOOSING SOLVENT CEMENTS & PRIMERS

Solvent cements for Astral CPVC PRO systems must conform to the requirements of ASTM F-493 or equivalent and should carry this identification on the can / tube label. A primer or cleaner must be used. Primers for PVC pipe can be used for CPVC. The National Sanitation Foundation (NSF) mark or other potable water approval should also be located on the container.

Certain code bodies require orange CPVC solvent cement and purple primer to facilitate identification by plumbing inspectors. However, unpigmented (clear) CPVC solvent cement and primer are available and accepted by various jurisdictions. If you decide to use clear products, we strongly recommend contracting the local plumbing inspector prior to beginning a job to determine whether these clear cements and primers are acceptable or not.

CPVC SOLVENT CEMENT'S SHELF LIFE

CPVC solvent cement are formulated to have a Shelf life of two years. Cans are usually marked with manufacturing dates. Good CPVC solvent cement should have the consistency of syrup or honey with no undissolved materials. Aged cement will often change colour or begin to thicken and become gelatinous or jelly-like. When this occurs, the cement must be thrown away.

SOLVENT CEMENT FREEZING

Use the same precautions to protect CPVC solvent cement from freezing as you would with PVC cement. Once cement gels, it can not be recovered and should be discarded.

BEFORE BEGINNING

1. Verify the cement is the same as the pipes and fittings being used.
2. Check the temperature where the cementing will take place.
 - Cement take longer time to set up in cold weather. Be sure to allow extra time for curing. Do not try to speed up the cure by artificial means this could cause porosity and blisters in the cement film.
 - Solvents evaporate faster in warm weather. Work quickly to avoid the cement setting up before the joint is assembled. Keep the cement as cool as possible. Try to stay out of direct sunlight.
3. Keep the lid on cements, cleaner, and primers when not in use. Evaporation of the solvent will effect the cement.
4. Stir or shake cement before using.
5. Use 20 mm (¾") dauber on small diameter pipes, 40 mm (1½") dauber, upto 80 mm (3") pipe, and a natural bristle brush, swab, or roller having size of ½ the pipe diameter on pipes from 100 mm (4") and up.
6. Do not mix cleaner or primer with cement.
7. Do not use thickened or lumpy cement. It should be like the consistency of syrup or honey.
8. Do not handle joints immediately after assembly.
9. Do not allow daubers to dry out.
10. Maximum temperature allowable for CPVC pipe is 180°F.
11. All coloured cements, primers, and cleaners will have a permanent stain. There is no known cleaning agent.
12. Use according to the step outline in ASTM D-2846, joining of pipe and fittings.



Pressuring Solvent Adhesive Joints

In order to develop full strength of Solvent Adhesives Joints, adequate care should be taken. Before the joints get exposed to pressuring, many factors will impact the required fixing time.

- A. Onsite temperature and humidity
- B. Pipe diameter (larger diameter joints require more time to cure)
- C. Internal operating pressure
- D. Internal operating temperature

In general, the fixing time will allow cold-water lines to be pressurized to the cited levels shown.

As per the standard practices, before operating the hot-water lines additional 50% fixing time required than the cold-water lines. Professionals doing repair or maintenance work should give adequate fixing time to the hot-water lines before pressurizing the system.

Hot Weather Solvent Adhesive Application Above 86°F (30°C)

- Store solvent adhesive, pipes as well as fittings in a dry, cool and shaded area
- Need to make sure that the surface is dry prior applying solvent adhesive
- Make sure surface is dry prior to application of solvent adhesive
- Need to make sure both the surfaces to be joined by solvent are properly coated with the solvent adhesives
- Stir or shake the solvent adhesive properly before use
- System anchoring and final connections should be made during the cooler hours of the day to account for expansion and contraction.

System Acceptance (Hydrostatic Pressure) Test

Once an installation is completed and fixing time is given as per these recommendations. The system should be hydrostatically pressure tested at design pressure x 1.5 times for one hour. When pressure testing, the system should be filled with water and all air removed from the farthest and highest point in the run. If a leak is found, the joint must be cut out and discarded and a new section should be installed using couplings.

Danger: Pressure testing with compressed air is dangerous and can result in injury or death. Do not use air to test CPVC Pro pipe, fittings and accessories.

TESTING OF INSTALLATIONS

1. Prior to a test, a visual inspection of the system shall be conducted to ensure that the recommended installation procedure has been followed and the pipeline, appliances, valves, and fittings have been installed correctly. Upon completion of installation, pipework, fittings, and appliances shall be hydraulically tested and inspected. Pressure tests should not be conducted on solvent-welded pipes until at least 24 hours after the last solvent weld has been completed.
2. During the test, all control valves should be left open and all open ends should be temporarily closed with water-tight fittings. Testing pressure shouldn't be less than one and a half times the expected operating pressure of the pipe. However, it is important to ensure the pressure does not exceed the working pressure of the lowest rated component of the system.
3. Apply pressure either by hand pump or power-driven pump. To ensure that test pressures are not exceeded, pressure gauges must be properly positioned and carefully observed. Slowly and carefully fill the system with water to avoid surge pressure of water hammer. The vents on all high points should be open during filling so that air can be expelled from the system.
4. As soon as the system is fully charged with water and air displaced from the line, air vents need to be closed, and the line should be inspected for seepage at joints and firmness under load. A pressure of one hour may then be applied when the 1.5 x Expected Operating Water Pressure OR Pressure Rating of the Lowest Pressure Rated Part (e.g. valve or flange) is reached. Check each joint for leaks or water seepage again after an hour.

USE OF CPVC PIPES & FITTINGS IN SOLAR APPLICATION

Since the outlet of water heater remains excessive hot due to elevated temperature from the thermal radiation steam, CPVC pipes or fittings should not be connected directly to the outlet as the excessive heat exposure can lead to distortion and deformation of the product.

Need to follow below mentioned guidelines for while using Astral CPVC Pro pipes and fittings in Solar application

DO'S

- Connect GI pipe of 1m length with solar water heater outlet, then use CPVC pipes and fittings
- Use expansion loop for exposed pipes on every 9-12 feet pipe run
- Always use proper support on specified distance to damp exposed pipes

DON'TS

- Never connect Astral CPVC Pro pipes or fittings directly with solar water heater outlet
- Never use CPVC pipes without expansion loop or offset
- Don't clamp pipes near loop or offset

Important Notes

NUMBER OF JOINTS PER LITER OF CEMENT BY PIPE SIZE



Dia of Pipe		Appx. Nos of joints*
(mm)	(in.)	
15	½	1200
20	¾	750
25	1	500
32	1¼	450
40	1½	325
50	2	225
65	2½	50
75	3	40
100	4	30
150	6	10
200	8	5
250	10	2-4
300	12	1-2

* Approximate numbers of joints which can be made per ltr. of solvent cement

* For primer, number of joints are approximate double than solvent cement

SAFE HANDLING OF SOLVENT CEMENT

When using solvent cements, primers and cleaners there are some basic safety measures.

ALL USERS SHOULD KEEP IN MIND.

- Avoid prolonged breathing of solvent vapors. When pipes and fittings are being joined in enclosed area, the use of ventilating devices are advised.
- Keep cements, primers and cleaners away from all the sources of ignition, heat, sparks and open flame.
- Keep containers of cements, primers and cleaners tightly closed except when the product is being used.
- Dispose of all rags used with solvents in a proper outdoor waste receptacle.
- Avoid eye & skin contact. In case of eye contact, flush with plenty of water for 15 minutes & call a physician.

THREAD SEALANTS

Threaded CPVC fittings with tapered pipe threads (e.g. male thread adapters) must be used with a suitable thread sealant to insure leak-proof joints. Over the years, PTFE (Teflon® or equivalent) tape has been the preferred thread sealant, it is still the most widely accepted and approved thread sealant. Some paste sealant can affect CPVC fittings; therefore only sealants recommended for use with CPVC by the thread sealant manufacturer must be used.

General Guideline for all Installations

DOS

1. Install product according to Astral's Installation instructions and manual and follow recommended safe work practices.
2. Keep Pipe and Fittings in original packaging until needed and store pipes in covered areas.
3. Use tools designed for use with plastic pipe and fittings.
4. Cut-off minimum 25 mm beyond the edge of the crack in case any crack is discovered on the pipe.
- 4A. Pipe may be cut quickly and efficiently by several methods. Wheel-type plastic tubing cutters are preferred. Ratchet type cutters or fine tooth saws are another option. However, when using the ratchet cutter, be certain to score the exterior wall by rotating the cutter blade in a circular motion around the pipe. Do this before applying significant downward pressure to finalise the cut. This step leads to a square cut. In addition, make sure ratchet cutter blades are sharp. Cutting pipe as squarely as possible provides optimal bonding area within a joint.
- 4B. Burrs and filings can prevent proper contact between the tube and fittings during assembly, and should be removed from the outside and inside of the pipe. A chamfering tool is preferred, but a pocket knife or file is also suitable for this purpose.
- 4C. Use only CPVC Cement or an all purpose solvent cement conforming to ASTM F-493 otherwise it may result in joint failure.
5. Always conduct hydraulic pressure testing after installation to detect any leaks and faults. Wait for appropriate cure time before pressure testing. Fill lines slowly and remove air from the system prior to pressure testing.
6. Rotate the pipe 1/4 to 1/2 to spread the CPVC Solvent Cement evenly in the joint while pushing the Pipe into Fitting.
7. Use Teflon tapes with threaded fittings.
8. Ensure that there are no sharp edges in contact with the pipe while embedding the pipes on the walls or in the floors.
- 8A. When making a transition connection to metal threads, use a special transition fitting or CPVC male

threaded adapter whenever possible. Do not over-torque plastic threaded connections. Head tight plus one-half turn should be adequate.

9. Provide Vertical & Horizontal Supports as recommended using the Plastic Straps only.
10. Apply a water- based paint only on exposed pipes & fittings.
11. Visually inspect all joints for proper cementing at the end of shift or day. A Visual inspection of the complete system is also recommended during pressure testing.
12. When connecting to a gas water heater, duct and CPVC should not be located within 50 cm of the duct. For water heaters lacking reliable temperature control, this distance may be increased up to 1 m. A metal nipple or flexible appliance connector should be utilized. This measure eliminates the potential for damage to plastic piping that might result from excessive radiant heat from the duct.
13. Use of a brass/CPVC transition adapter when connecting CPVC to a water heater will help facilitate water heater replacement in the future.
14. Pressure test CPVC systems in accordance with local code requirements.



DON'TS

1. Do not use Metal Hooks or Nails to support / hold or put pressure on the pipes. Do not use straps & hangers with rough or sharp edges. Do not tighten the straps over the pipes.
2. Never expose the pipe to Open Flame while trying to bend it.
3. Do not drop pipes on edges from heights. Do not drop heavy objects on pipes or walk on pipes.
4. Do not dilute Solvent Cement with Thinner /MTO or any other liquid etc.
5. Do not use air or gases for pressure testings.
6. Do not use any other petroleum or solvent- based sealant, adhesive, lubricant or fire hazard material on CPVC pipes and fittings.
7. Do not use CPVC Pipes & Fittings for air, gas, and pneumatic applications.

NOTE:

The CPVC pipe has a service life of more than 50 years which is similar to the average age of an apartment. The CPVC pipe after its service life can be recycled as per the general process of pipe recycling. The recycled pipes can be used in CPVC production thereby reduces the demand of virgin material. The pipe can also be sent to the incineration plant or landfills as per the requirement



*A consumer validated
Superbrand in piping
category for
consecutive 4 years*



*India's Most Trusted
Pipe Brand based on
TRA's Brand Trust
Report for the 6th time*

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*India's Most Desired
Brand based on
TRA's Brand Trust
Report 2022*



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Please get in touch with us between 10 AM to 6 PM
between Monday to Friday and the last Saturday of the month.
We will remain closed on Public Holidays.

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